

ERNEST BORN

⦿



**THE**  
**ARCHITECTURAL RECORD**

**1936**



RESTORATION OF COLONIAL WILLIAMSBURG • PART II

# YOUNGSTOWN



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# THE ARCHITECTURAL RECORD

VOLUME 80 • NUMBER 5 • NOVEMBER, 1936

## NEWS OF THE MONTH

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## A BEAUTIFUL JOB ON A BEAUTIFUL HOME

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**A FACTORY PREPARED STUCCO IS PREFERABLE**

STUCCO MADE WITH **Atlas White** PORTLAND CEMENT

• N E X T M O N T H •

**MUSEUM PLANNING.** By Philip N. Youtz, Director, Brooklyn Museums. **JACKSON COUNTY COURT HOUSE,** Kansas City, Missouri. Keene and Simpson, Wight and Wight, Edward F. Nield, Associate Architects. **WWJ BROADCASTING STATION,** Detroit, Michigan. Albert Kahn, Inc., Architects. **PLANNING NEIGHBORHOODS FOR SMALL HOMES.** By A. F. Kamstra, Committee for Economic Recovery. **TECHNICAL NEWS AND RESEARCH. NEWS OF THE MONTH. OTHER FEATURES.**

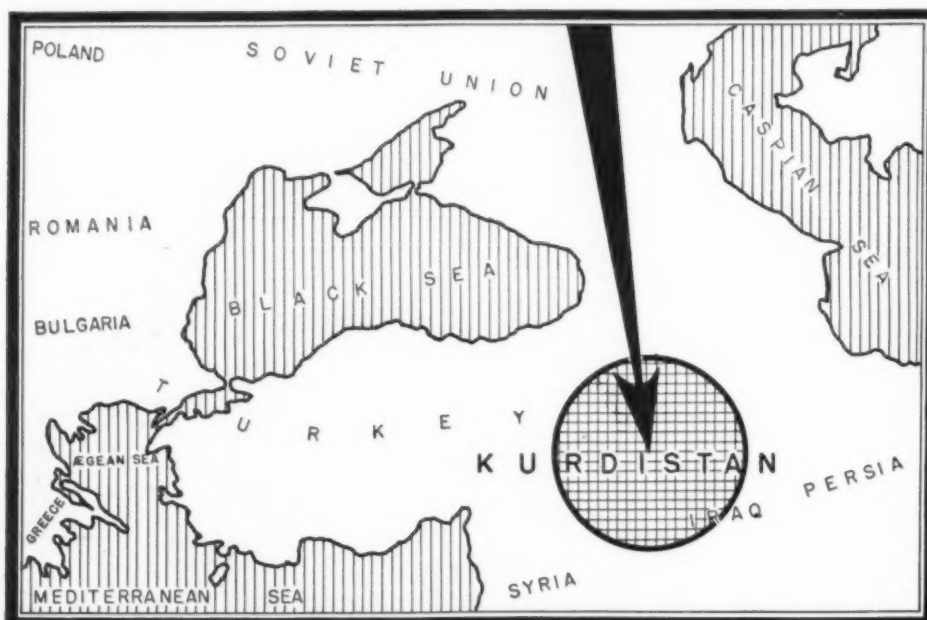
# THE ARCHITECTURAL RECORD

V O L U M E 8 0 • N U M B E R 5 • N O V E M B E R 1 9 3 6



# NEWS OF THE MONTH

## KURDISH EXPEDITION FINDS OLD CULT, NEW DESIGN, SAME MEN



These friendly peasants were the architects and builders of exotic temples. Equipped with claws and scythes, they were glad to stop their harvesting and pose for the camera.

All the elements of a black magic pulp story attended a recent expedition into the Kurdish mountains led by the Austrian archaeologist Von Kummer. By no means an unknown land, the expedition nevertheless stumbled on something new in the way of (a) religion and (b) architecture. These Kurdish peasants, while of Arabic origin, are not Moslem; they have given up the nomad's life to farm the plateau region south of the mountain range which runs east-west between modernized Turkey and British-owned Arabia.

Von Kummer found the peasants likable enough—"honest farmers by day who wore long claws which they claim aid them in farming." Their villages of rude clay huts left archaeologist Von Kummer cold—it was not until he began to ask questions about the gleaming spires in the foothills that he "was greeted coldly by the peasants." And when he learned that these cones were not tombstones but shrines to which the peasants retired for nightly worship, he determined to see them.

Warned to turn back, the expedition nevertheless secured a guide who led them into the hills. Climbing, the air grew cool and the vegetation heavy. At first singly, then in increasing numbers, they saw the fluted white cones; they symbolized flames, the guide told them. Finally they reached the temple itself, a square stone building topped with the now-ubiquitous cones and guarded by a horrific high priest, in black and red. He refused them entrance; and while they argued with him, they photographed the entrance, with its Arabic carving, stone serpents and devils' horns above it.

The argument—in Arabic and German—reached such a pitch that the cameraman slipped into the sanctuary unnoticed; saw "a red-draped sarcophagus"; took a picture of it which was no good when developed. Returning, the expedition studied the numerous shrines, amazed at the contrast between them and the houses in which the worshippers dwelt. But it was not, according to Von Kummer, until they were resting in the shade of a village wall, "that they saw a devil's hand on a house wall and realized they were in a village of devil worshippers."

Startling in their purity of form, these Kurdish temples illustrate a truism—that there is no essential connection between highly refined building forms and a socially progressive culture. The basic design of these structures is a geometric concept of a high degree of sophistication—the formalization of fire: and the execution of such a design by unlettered workmen indicates a highly developed craftsmanship. Yet these structures are built for a most primitive religion—the appeasement of the devil—by men whose living quarters are “rude and unadorned,” whose general standard of life is quite low.\*

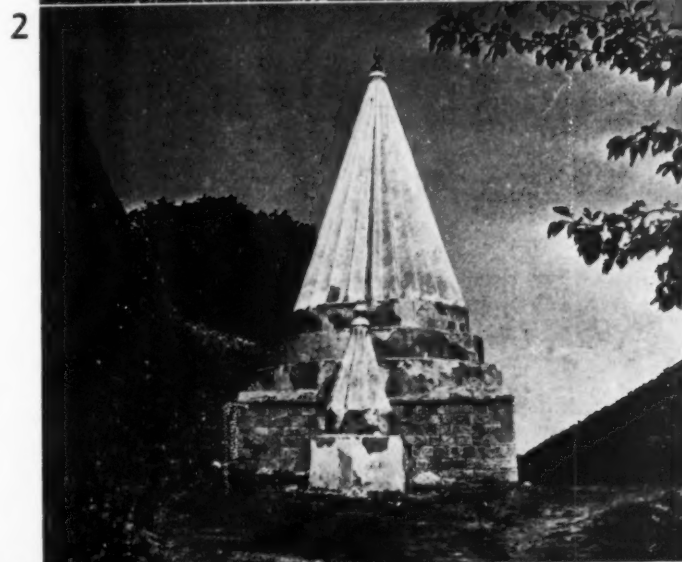
The temples and shrines are concentrated in the hills, presumably for protection, though occasional shrines dot the plains. The conical towers are put to several uses—as spires for the main temple (Fig. 1); as markers for the temple grounds (Fig. 2); and as isolated shrines (Fig. 3). In each case they follow a definite pattern which is the symbol of the cult—a fluted cone-shaped tower atop a series of circular bases which in turn rest upon a square plinth of hewn stone: all the towers are plastered. Where they are used as shrines vaulting over the square plinth supports the conical tower. Each shrine boasts a pair of “devil horns” over its entrance (Fig. 4) and a metal finial with horsehair tassel. They are surrounded by stone walls which, serving merely to keep out cattle in the plains, reach monumental proportions at the temples.

Built as they are by peasant craftsmen without the benefit of plan, T-square or handbook, these structures show an astonishing degree of accuracy. The cone, which in plan is star-shaped, varies from building to building. In the smaller structures as low as 8 flutes are used, rising to as many as 18 or 20 in the temple spires. Where or when this form was first evolved the peasants could not say. The manner of building they could not describe. Although still active, the cult builds no new temples. Here, as elsewhere, temple building has slumped.

\* No new note in archaeology, this; in “Rameses to Rockefeller,” C. H. Whitaker points out that history affords one example after another of the productive forces of a nation being channelized into temple-, tomb- and palace-building, viz.: India, Egypt, Greece, Rome.



Globe Photos



# NEWS OF THE MONTH

## HOUSING, YES: BUT HOW, WHEN, WHERE, FOR WHOM?

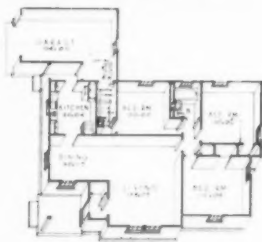
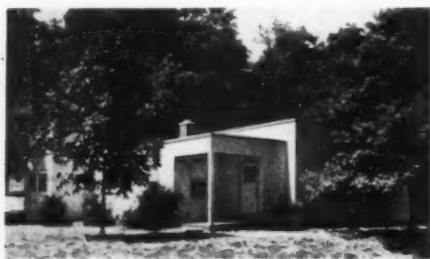
● *Attacking the Gordian knot in the nation's largest industry, architects, manufacturers, realtors, professors and Federal housers last month offered their solution for what they admitted was a mess. Housing we must have, they admitted—but should it be rented or sold, detached or multiple, individually or industrially designed and fabricated? There they differed.*

● *Speaking before the 44th Convention of the U. S. Building and Loan League, Allie S. Freed of the Committee for Economic Recovery said, "Your job and*

*mine is the liberation of America from the slavery of disgraceful housing conditions."* And Prof. C. E. A. Winslow, director of Yale's School of Public Health, estimated that 6,000,000 families are housed "at a level lower than that which obtains in the leading countries of Europe and inferior to that used for cattle." Here Messrs. Freed and Winslow parted. While admitting that all those whose income was under \$1,000 per year must be government-housed, Freed maintained that the larger field should be reserved for private initiative and that

*these should be rented, not sold. But Prof. Winslow points out that the largest block of potential demand lies below Mr. Freed's minimum and that the "magnitude of the problem is beyond the scope of private enterprise."* Both agreed on one point: *the houses should be rented.*

● *Also for multiple dwellings were H. A. Gray, PWA Housing Division, and Langdon Post, New York City Housing Authority, but for different reasons. Speaking at the cornerstone-laying of Williamsburg Houses, largest PWA project, Mr. Gray pointed out that only*



## PURDUE UNIVERSITY PROPOSES RESEARCH INTO STRUCTURE

"For the development of information of interest to the small house building industry of the country," Purdue University collaborates with various materials and equipment industries in joint sponsorship of research projects. Last month, in conjunction with the Insulated Steel Construction Company, it opened its House No. 4—built of sheet steel and concrete at a cost of less than \$5,000 in a construction period of 75 days. While striving for maximum efficiency in planning, House No. 4 offered no significant

advance from traditional room arrangements. But it did present a design and detailed analysis of structural members specifically designed for steel.

Other materials and structural methods are being studied in several houses now under construction by the University. The results of these projects will be similarly analyzed and published. By the dissemination of such data Purdue hopes to at once raise the general level of performance and reduce the cost of the average small, detached house.



## ARCHITECTS OFFER CATALOG, STANDARDIZED SERVICES AND FEES

The Detroit Kelvinator Corporation invited a long list of notables to attend the opening of "Kelvin Home." Widely hailed as a daring departure, it proved to be a small house of Colonial design whose chief interest lay in a heating and cooling system specifically designed for the small house. Although Ivan Dize, Detroit architect, was engaged to design a series of 30 small houses whose dimensions are suitable to the typical lot, whose plan is suitable to the air conditioning

system, Kelvinator made it clear that "it is not entering the building construction field." The plans it developed will merely serve as guides to "a series of homes which will be erected by local construction firms throughout the country, employing local labor and capital, and making principal use of local material and supplies." Besides the new air conditioning system, Kelvin Home introduced new equipment for the kitchen, including stoves and refrigeration.



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● But defense of the detached dwelling was not lacking. Believing that the largest field of activity still lay in the traditional form, Purdue University went ahead with its research into improved structural systems, announcing an all-steel 5-room house for \$5,000. Collaborating with the University in this project was the Insulated Steel Con-

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● Much more far-reaching was the program of Arcy Corporation, which an-

nounced that it would enter the \$5,000 field not only with a new structural system, but with a new merchandising system which will offer design, fabrication, assembly and finance in one service. Arcy's success should prove a boon to a harried steel industry, faced with a 1936 surplus production capacity of some 9,000,000 tons.

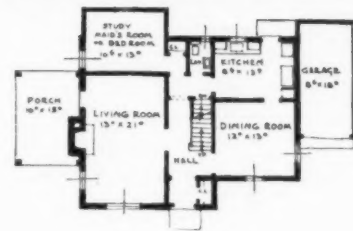
● But the American Society for Better Housing, Inc., answered this challenge in its own fashion. Composed of 21 architects, the Society published a Handbook of a number of houses, many of which it has actually built, to demonstrate the architect's usefulness.

## INDUSTRY WANTS BETTER PLANNING FOR BETTER EQUIPMENT

Meanwhile, 21 architects intent upon reorganizing their services to win a share of the expanding small house field, formed the American Society of Better Housing, Inc. The Society's Handbook, just off the press, lists plans, elevations, and brief descriptions of 32 houses in the \$5,000-\$15,000 class which its members have designed. Fifteen of these have been constructed in commuting distance of New York with the cooperation of manufacturers, decorators, and landscape architects.

Although the Society claims to have "taken a leaf from the pages of the automobile industry," its Handbook is more plan book than catalog, its purpose remains fundamentally the same as the A.I.A. Small House Bureau out of which the Society grew. Architect-client relations remain the same: "there will be no retainers paid to any member by the Society. Only such business as is developed by members through their individual clients will serve as remuneration," the Society announced.

Photo by Newspaper Feature News



## STEEL MAKES ITS BOW IN NEW STRUCTURAL SYSTEM

In Cleveland's Shaker Heights the Arcy Corporation is building these five houses to demonstrate a new structural and merchandising system by which it hopes to produce houses "at a set price with a single contract." This means that a single merchandising organization

will offer the prospective home owner the economies of a unified building procedure—architectural design, engineering, fabrication, and field assembly combined. Plans have been made for the production of houses costing \$5,000 or less which will have the same structural

system as in the higher priced custom-built types. Some 50 standardized layouts have been prepared for the buyers' selection and already, through arrangements with a life insurance company, mortgage money will be available up to 2/3 of the combined value of house and ground. (*Technical News*, pages 401-3.)

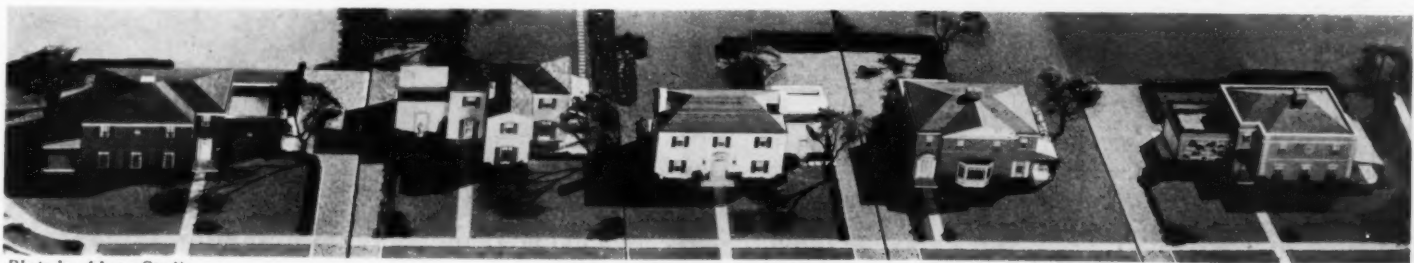


Photo by Adams Studio

# NEWS OF THE MONTH

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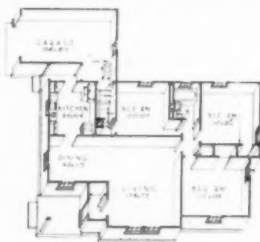
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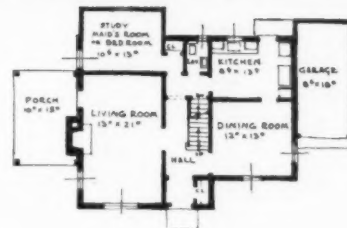
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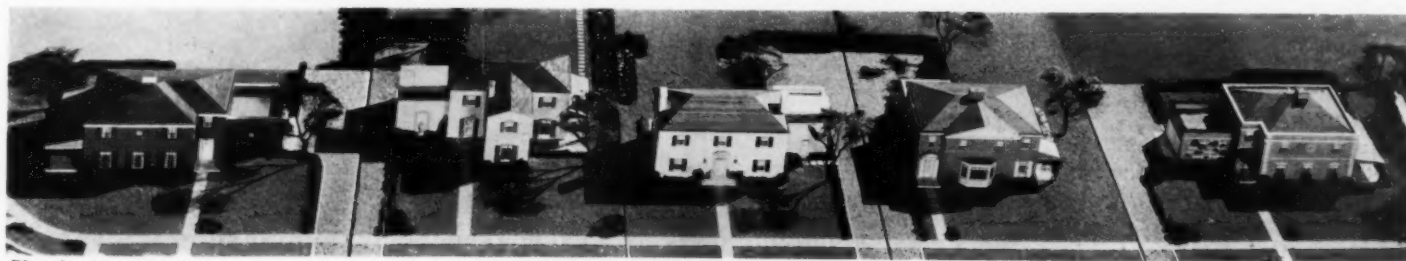


Photo by Adams Studio



# NEWS OF THE MONTH

Photo by Acme



## LIGHT IN THE CITY OF ANGELS

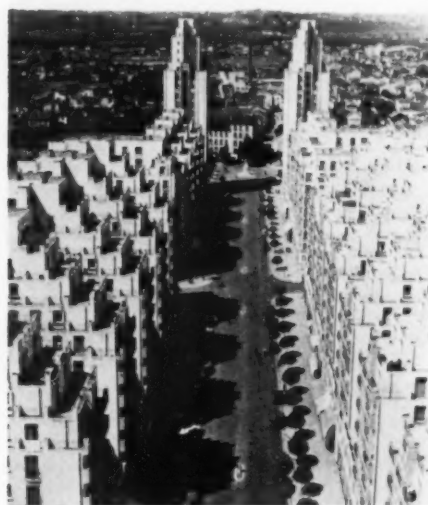
To celebrate the arrival of power from Boulder Dam, Los Angeles lighted her city hall and three miles of her streets in one of the most lavish electrical shows in her lavish record. Beside power from the muddy Colorado, the City of Angels will next year import water via a 250-mile aqueduct; the world's largest pumps will boost the water over the Sierras.

## A.I.A. ADOPTS ACCOUNTING SYSTEM

A.I.A. has officially adopted a standard accounting system for architects, developed by Edwin Bergstrom of Los Angeles, treasurer of the Institute, and described as "pioneer work in the field of architectural practice."

"The issuance of this accounting system by the Institute indicates the architect's intention to maintain his proper position of dominance in the building operation," says an A.I.A. announcement. "At present, uniform and accurate data for intelligent comparisons of the costs of rendering the various architectural services do not exist. The system, which has been in preparation for the past five years, will produce an accurate, informative, and intelligible statement of the financial condition of a business at any date."

The system covers the principles of accounting—the account, bookkeeping records, and financial statements; schedule of accounts; asset accounts; liabilities and net worth accounts; income accounts; expense accounts; cost accounting; journalizing and other recording; bank deposits and checks; and construction accounts.



## CITE AMERICAINE

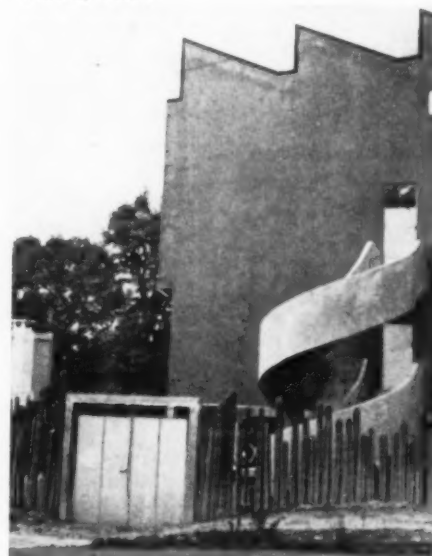
"This amusing photo," says a French report, "shows a strange resemblance to the great American cities." Not quite accurate, the report overlooks the fact that this view of the famous Villeurbanne project outside Lyons shows workers' housing; only American counterpart is wealthy Park Avenue.

## CHURCHMEN DODGE "EXPERIMENTAL" DESIGN

Since theological seminaries "offer courses in everything but church architecture—even animal husbandry," the North American Conference on Church Architecture, assembled in New York City last month, was not surprised that most American churches are "total artistic losses . . . pathetic financial wastes." The Rev. Prof. Luther D. Reed, presiding at the Conference, estimated his church—the United Lutheran—had spent \$50,000,000 on new buildings in the decade ending 1929; out of that he doubted "if we got just \$5,000,000 worth of really good architecture."

A schism developed in the Conference. Columbia's Dean of Architecture, Leopold Arnaut, traced the development of church architecture to prove "that it had been constantly creative and dynamic . . . should not be stifled by the traditions of these 2,000 years." The architects felt that "twentieth century church architecture should be natural, dynamic and expressive of the times." The clergymen found the thought "interesting" but warned that the church could not dabble in "intellectual experiments."

Photo by Fischer



## FENCED OFF WITH CACTI

The San Angel studio of Diego Rivera, Mexican artist whose murals were removed from Rockefeller Center several years ago, is protected from peeping Toms by a stockade of organ cacti. The structure is fireproof, raised one story off the ground, and skylighted in true factory style.

## NEW YORK ARCHITECTS ASK HOME-RULE

"Bureaucratic domination of the arts" in the State of New York was charged by a group of architects in a recent letter to Governor Herbert H. Lehman. The letter grew out of the recent selection of the State Architectural Bureau in the Department of Public Works to design the proposed New York State War Memorial Building in Albany. "The state is being deprived of the service of its greatest creative artists," the letter charged, and is guilty of a resentful, even an arbitrary and unenlightened attitude.

A request for a conference with Governor Lehman met with a curt response from the Governor's office and from Edward N. Scheiberling, chairman of the New York State World War Memorial Authority. "It has been known for some time," says the letter, "that it is the policy of the Department of Public Works to oppose the services of private architects and engineers on public work connected with the State. We submit to you that this Department as the servant of the public has no moral right to ignore the entire profession of architecture in this State."

Photos by Wide World



1936 — WPA puts on the finishing touches.



1890 — Railroad tracks once bisected it.

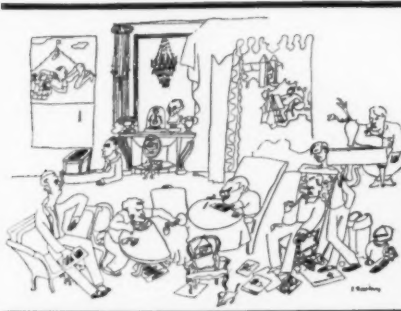
## L'ENFANT SHOULD SEE IT

After more than a century the Mall in Washington is assuming the character that the French engineer L'Enfant envisioned. For decades on end the subject of misplanning and short-sighted construction, the Mall now stretches unobstructed from the Capitol to the Potomac. The principal work has been the opening of the Vista between the United States Capitol and the Washington Monument, and to the Lincoln Memorial beyond; development of Union Square at the foot of the Capitol grounds; construction of roads and walks; the planting of ornamental trees and shrubs; and the development of lawn areas.

## BRICK MAKERS TO WORSHIP AT BRICK SHRINE

"Thanks to the generosity of its patriotic donor and to the genius of the architects who have recreated this incomparable monument," the National Brick Manufacturers Association will play host to the nation's architects at Williamsburg, Virginia, next year. The convention will "study those glorious decades in which brick made its earliest contributions . . . will inspire a new faith in the future of brick."

## C.I.A.M. MEETS TO PLAN PARIS CONGRESS

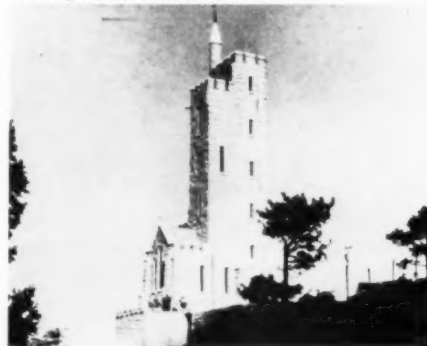


These were the people . . . and this the place

Meeting in September at the ancient castle of La Sarraz, Switzerland, delegates to the International Congress of Modern Architecture (C.I.A.M.) laid plans for participation in next year's Paris Fair. C.I.A.M. was formed in 1928 as a loose international agency for integrating architectural research. In the Frankfurt convention of 1929 it adopted a constitution which set forth its objects: "1. To formulate the contemporary architectural problem. 2. To present the modern architectural concept. 3. To circularize this concept in technical, economic and social circles. 4. To struggle for the concrete realization of this architectural concept."

Composed as it is of national "groups," C.I.A.M. works on a common program of research as it applies to each group's specific problems. The results of this research are presented at the conventions, where plans are laid for extension and refinement. Thus the minimum house was the subject of the 1929 convention; but discussion showed that the house could not be studied independent of the community. The 1931 meeting then at Brussels concentrated upon the community (neighborhood); but here again C.I.A.M. found that the neighborhood was only part of the city and could not be analyzed otherwise. In 1933 the congress sessions took the form of a Mediterranean cruise; here the city was analyzed and plans laid for the next convention which, delayed by circumstances, will meet in Paris next year to concentrate upon national and regional planning. Although confining itself "to the presentation of the whole data of architecture and urbanism," C.I.A.M.'s steadily expanding scrutiny of the social and economic bases of architecture has inevitably led to a political orientation, until today it is recognized as one of the most progressive forces in European architecture.

Photo by Wide World



## HE NEVER SAW THIS IN THE PAPERS

Mixed metaphors abound in this "Will Rogers Shrine of the Sun" recently built near Colorado Springs by Spencer Penrose as a memorial to the famous cowboy humorist. Why a "shrine of the sun," in Norman style atop a Colorado mountain, should memorialize the dry Oklahoman, builder Penrose has not explained.

Photo by Wide World



## NEW USE FOR CASTLES IN SCOTLAND

That all Scottish castles need not be "hunting boxes" for roving millionaires is proved by the use to which Lennox Castle has been put by the City of Glasgow. Using the castle as an administration building, a complete and self-sustaining institution for the mentally defective has been designed around it. Notice the repetition of one basic plan in the housing units.



# NEWS OF THE MONTH



Photo by Soviet Foto Agency

## UKRAINIAN IDYLL

Far different from the notorious famine pictures of the Ukraine is this scene in the zoo at Kharkov, capital of the Soviet Republic. In the background is the new House of Projects, home office of Ukraine's Planning Commission.



Photo by Fischer

## ESCOLAR REVOLUCION

Named for the revolution which made it possible, this new school in Mexico City is part of the extensive reconstruction program which is rapidly giving the Mexican Republic one of the most progressive educational systems in the western hemisphere.



Photo by Acme

## READY FOR THE JAPANESE PARLIAMENT

After 17 years, and at a cost of 22,500,000 yen, Japan's new Diet Building now stands near the Imperial Palace, ready for the next month's ceremonial opening. Although designed in the best Occidental-Academic tradition, the structure is a nationalistic gesture—the builders boast that only Japanese materials were used. Like its navy, the Japanese capitol is only exceeded in size by those of Great Britain and U. S.

## TECHNICIANS STUDY THEIR FUTURE

In an attempt to present an integrated picture of the revolution taking place in the building industry and its effect on the building technician, Washington Chapter, F.A.E.C.T. last month began a two-months' symposium, *Trends—What Do They Mean To The Technician?* The symposium, which meets weekly, opened October 5 with a three-point discussion of new developments in metallurgy, plastics, and wood products, by J. R. Cain, Division of Metallurgy, and G. M. Kline, Chief of Organic Plastics, National Bureau of Standards, and G. W. Trayer, Chief of U. S. Forest Products Laboratory.

The October 12 meeting heard Walter Polakov, Progress Engineer, WPA, give a detailed outline of "our construction needs and relative capacity to produce them." \$142,000,000,000 would be required, said Mr. Polakov, to fill our national need in terms of housing, schools, sanatoriums, recreational services, etc. He was followed, on October 19, by David Cushman Coyle, famous engineer-economist, who advocated a planned public works program to supplement private enterprise. James S. Taylor, FHA statistician, analyzed private and public aid to housing on October 26.

The symposium, which continues this month, will discuss public works, its political implications, and the position of the technician in relation to these developments.

## FIREPROOF GYM FOR BURNED ATHLETES

A new field house for Purdue University, at Lafayette, Indiana, will shortly replace the house destroyed by fire early in September with the loss of the lives of three of Purdue's football players. More than a dozen players were burned when gasoline they used to remove tape from their bodies was ignited. The explosion sent a sheet of flame through the shower and dressing rooms, igniting the structure. Carl Dahlbeck, Lowell Decker and Tommy McGannon died from the burns they suffered; several others have not yet fully recovered from their injuries.

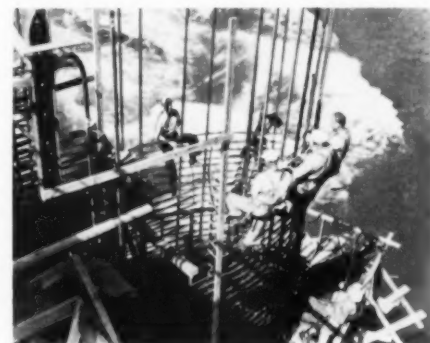
The new building, of reinforced concrete and brick and limestone, will cost \$652,000.



Photo courtesy P.W.A.

## MOVIES IN MONTANA

To amuse the 7,000 workers in the government-owned construction town of Fort Peck, Montana, this Alpinesque movie palace has been erected. At Fort Peck, PWA is building the world's largest earthen dam to control the floodwaters of the Missouri River.



## THIS IS THE WAY THAT DAMS ARE MADE

Bar by bar, these workmen are weaving the reinforcing for the great Bonneville Dam, PWA'S power, navigation and flood control project on the Columbia River. Supported, like window cleaners, with one leather strap, they pay no mind to the whitecaps below them.



Photo by Acme

## ICKES' NEW HOME NEARS COMPLETION

Although simpler in design than earlier governmental buildings in Washington, the new Interior Building staunchly supports one of the capital's oldest traditions—that the floor at the cornice line be windowless. (It was this tradition which last year enabled a fire to damage seriously the brand-new Post Office Building before firemen could get at it.) The new Interior Building will be finished early next year.



## COMPETITIONS FOR THE PRIZES OF ROME

The American Academy in Rome has announced its annual competitions for fellowships in architecture, landscape architecture, painting, sculpture, musical composition and classical studies.

The competitions are open to unmarried men (in classical studies to men and women) not over 30 years of age who are citizens of the United States. The total estimated value of each fellowship is about \$2,000 a year and the term of the fellowship in each subject is two years. All fellows have opportunity for extensive travel and for making contacts with leading European artists and scholars. Fellows in musical composition also have opportunities to conduct and hear renditions of their own works, and the Academy has a fund for publishing some of their compositions.

Entries for competitions will be received until February 1, 1937. Information and application blanks may be obtained from Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York.

## U.S.S.R. ENGINEERS EXPLORE U.S. METHODS

To study American construction methods, a group of Soviet engineers is now making a tour of the nation's largest current projects. The group, under the leadership of A. L. Novikov, vice-president of the Committee for the Reconstruction of Moscow, consists of technicians employed in the huge ten-year plan for rebuilding the Soviet capital, plans of which were completed and displayed at the recent All-Union Construction Exhibit (*News of the Month*, September, 1936).

## CALENDAR OF EXHIBITIONS AND EVENTS

- November 18-20—Thirty-seventh Annual Convention, International Acetylene Association, St. Louis, Mo.
- November 29—Closing date: Special Exhibition of Glass, 1500 B.C. to 1935 A.D.; Metropolitan Museum, New York City.
- November 30—December 4—American Society of Mechanical Engineers Annual Meeting, New York City.
- November 30—December 5—Twelfth National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York City.
- December 4, 5—Annual Meeting, National Association Housing Officials, Philadelphia, Pa.

## DIRECTORS VIEW MODEL OF 1939 WORLD'S FAIR



Grover Whalen, president of the World's Fair Corporation, points out to the directors the "theme tower" of the proposed Fair. From this tower, only multi-story building in the Fair, visitors will be able to view the world's largest exposition with proposed exhibition space of 2½ million square feet.

## LEAGUE ADVOCATES WAR-CONDITIONED MUSEUMS

More and more European architecture and town planning is reflecting the threat of European war. Recently the Royal Institute of British Architects was warned to design bombproof structures wherever possible and to decentralize its hospitals, factories and schools to make them less vulnerable from the air. And London last month opened its first "war-conditioned" building—a three-story structure of bombproof construction, with complete air conditioning, gas- and shrapnel-proof windows. In addition, there is a sub-basement where ten persons can live indefinitely; it is completely equipped with "radio, telephone, running water, emergency lights, canned food, and even mustard-gas ointment."

Recognizing the war threat, the international museums office of the League of Nations last month issued a memorandum on "putting the national art on a war footing."

"For movable art works, the building of reliable shelters within museums offering the same efficacy as those designed, for example, for protection of the civil population against aerial bombardments.

"Equipment of museums with a view to the removal of art works to these shelters in cases of impending danger.

"Drawing up drilling instructions for training museum staffs in these delicate operations.

"Acquisition of material that can be rapidly utilized for protection against effects of bombardment of art works difficult to remove.

"For architectural monuments, adoption of the same protection measures by competent departments with a view to insuring, in the event of aerial bombardment, the safety of more fragile parts (stained glass windows, bas-reliefs and other sculptural features) both inside and outside monuments.

"Steps to be taken with public authorities with a view to clearing in peace time certain artistic monuments of outstanding artistic or historic value of all surrounding buildings, works, airdromes, lines of communication, etc., used or capable of being used for military purposes.

"Construction outside urban centers and in places that give rise to no misunderstanding from a military or from a strategical viewpoint of shelters and depositories to which movable objects to be protected can be transported wherever possible; or appointment of a town or center in each country to be declared strictly neutral and to serve as a last asylum for humanity's laws."



*Photograph by M. Zimmerman*

## T E R R A C E

# PROGRESS IN THE RESTORATION OF COLONIAL WILLIAMSBURG

By KENNETH CHORLEY

President of Colonial Williamsburg, Incorporated

¶ NINE YEARS of intensive and varied activity have brought the restoration of Colonial Williamsburg to a point where its major architectural aspects may be considered virtually completed. In an effort that has so many ramifications it is difficult to apply the usual yardstick and make a sweeping statement concerning the completion of this work in Williamsburg.

The major architectural activity of the Restoration this year has been concentrated on the plans and construction of the new Williamsburg Inn. In April ground was broken for this new structure which is now being built just outside the area included in the Restoration. The construction schedule calls for the completion of the building during the early part of 1937 so that it may be open and in operation early next spring. It will be approximately three city blocks from the present Williamsburg Inn—overlooking the Court House Green—which is to be abandoned and removed.

In style the new Williamsburg Inn recalls southern architecture of the early 19th Century which was popular at the Virginia Springs during that period. It is thus later than the 18th Century period represented in the restored area. It will be of brick, white-washed, and its design and scale have been formulated with great care not to conflict with the general architectural appearance of the adjacent restored area, and yet to be a style readily distinguishable from the buildings in the area.

The plans for the new Inn have been prepared and are being executed under the supervision of Perry, Shaw and Hepburn, of Boston, architects of the Restoration. The landscaping will be under the direction of Mr. Arthur A. Shurcliff of Boston, landscape architect of the Restoration.

The Public Gaol was restored in accordance with plans prepared by the architectural department of Colonial Williamsburg, Inc., approved by Perry,

Shaw & Hepburn, and the work was executed by the construction department of the Restoration. This structure, representing the "strong, sweet Prison" of the Virginia colony during the 18th Century, was opened to the public as the fifth exhibition building in the group of major public buildings which includes the Capitol, Raleigh Tavern, Ludwell-Paradise House and the Governor's Palace.

Excavation of the original foundations and examination of the surviving structure yielded such detailed information as the brick bond which had been used, the height of cornices, the size of the chimneys, and also the treatment of the window and door openings. Heavy oak sheathing nailed with great iron spikes was found under modern planks; old locks, bars, hinges and hasps still existed, and in the excavations were found not only pipe stems, bottles and other articles, but leg irons, handcuffs and shackles. Some of this same hardware has been used in the restored building.

Outside the prison have been erected the pillories and stocks designed from early American and English examples that were part of the equipment of Colonial Virginia prisons.

On Duke of Gloucester Street, near Dr. Blair's Apothecary Shop (restored), has been reconstructed the Pitt-Dixon House, a six-room structure rebuilt following the original foundations. In addition to the main house the "chair house and stable" have been restored.

Bassett Hall, one of the most interesting old houses in Williamsburg, has undergone additional restoration both in landscaping to complete the gardens and the completion of the interior finish of the main building for use as a residence.

On Prince George Street, not far from the Palace Green, the Deane Smithy Shop and Forge have been reconstructed on the old foundations and these buildings will be used as a smithy shop.



An extensive outbuilding program was included in the year's budget of work. A spacious stable at the Semple House, near the Capitol, has been reconstructed. Elsewhere in the restored area many additional outbuildings have been built after careful architectural research. Before the end of the year about twenty-five of these outbuildings will be completed under this program. These will consist of stables, well houses, smoke houses, kitchens, wood sheds, privies, poultry houses and dairies.

Reflecting the varied demands of an increasing

number of visitors many other activities have been initiated and continued during the year. Parking and traffic arrangements in anticipation of the opening of the new Williamsburg Inn are receiving intensive study. Part of this deals with improved methods of handling and routing of visitors within the city limits. Other important aspects deal with connections with existing highways and new approaches to Williamsburg that will be provided by the new scenic parkway from Yorktown that is being built by the Colonial National Historical Park.

*Photographs © F. S. Lincoln*



**Dr. Blair's Apothecary Shop.** This brick apothecary shop was erected in the first quarter of the eighteenth century and was subsequently used as a mercantile establishment.

# PORTFOLIO OF BUILDINGS AT COLONIAL WILLIAMSBURG



## PART II

### Bruton Parish Church.

Seen from Nicholson Street with the Palace Green intervening. The barriers in the foreground are a modern adaptation necessitated by automobile traffic.

*By arrangement with Colonial Williamsburg, Inc., Part II of an authoritative presentation of the Restoration is given in this Portfolio.*

*Part I, December 1935 Architectural Record, was intended to give a general picture of the Restoration, including the history of Williamsburg, responsibility for the Restoration, notes on the architecture by the architects, the landscape problems, and furnishings.*

*This supplementary portfolio is devoted to details of outbuildings of lesser size, gates, fences, mantels, interiors and work completed in the course of the past year.*

*All landscape work was done under the direction of Arthur A. Shurcliff, Landscape Architect.*





Photographs © F. S. Lincoln





**The Carter-Saunders House.** At the time of the Restoration this house possessed an impressive nineteenth century portico. The original stone steps, though too badly damaged for reuse, were found in excavating a well on the property.

RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS **341**



Photographs © F. S. Lincoln





**The James Galt House.** Moved from its original site, this Colonial dwelling has been restored upon new foundations on the Duke of Gloucester Street where it has replaced a modern building.

RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS 343





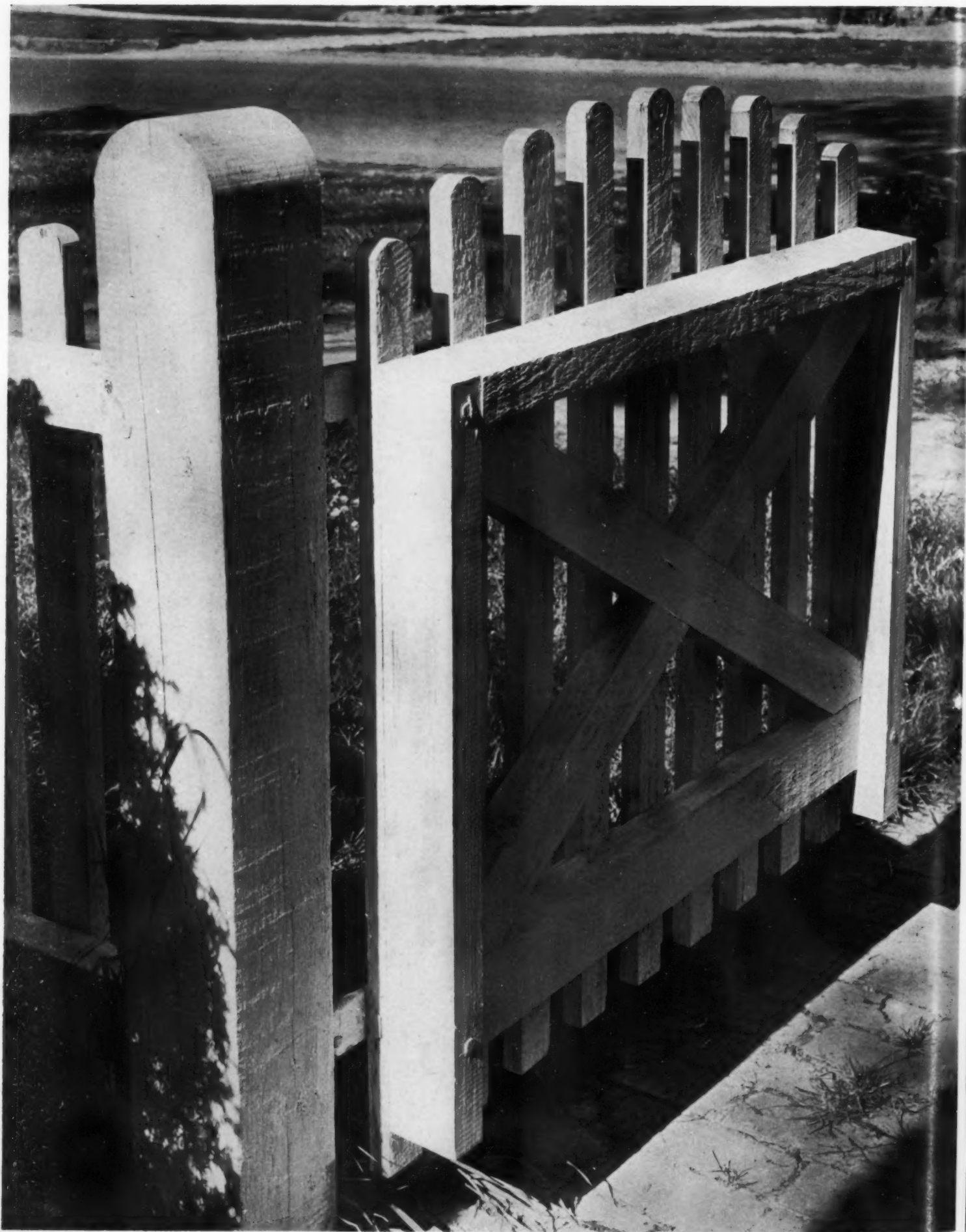
Photographs © F. S. Lincoln



**Coke-Garrett Gardens.** These gardens were among the few in Williamsburg which had survived even in part from the Colonial period.

RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS 345





Photographs © F. S. Lincoln





house. **Gate to Kerr House.** The design for this gate was an original gate at Hametsham, Kent, England.

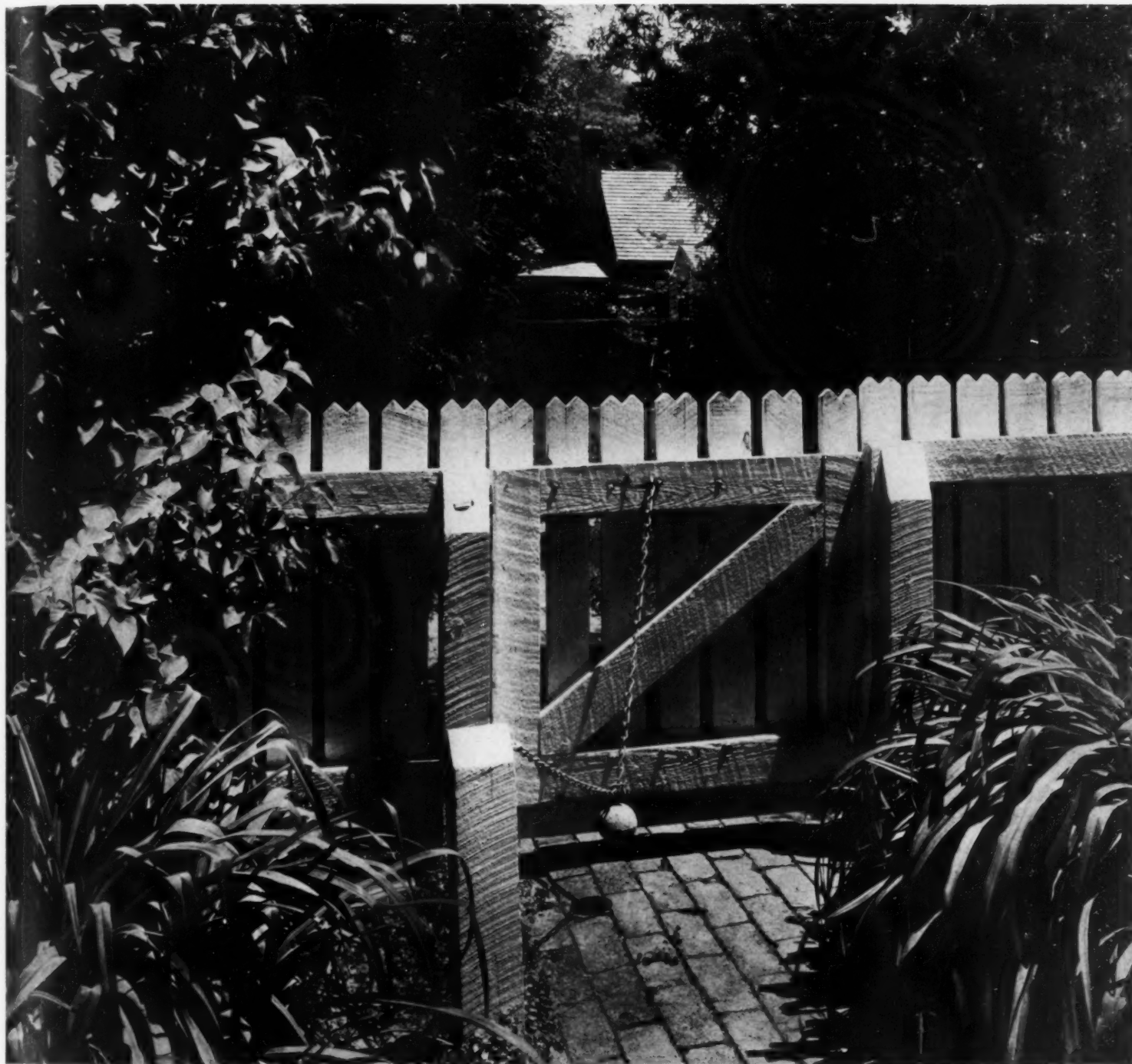
RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS 347



Photographs © F. S. Lincoln

**Gate to Purdie's Dwelling.** Precedent for the design of this gate was found in an eighteenth century gate in Bermuda, which had certain architectural features in common with Virginia.





**Coke-Garrett Garden.** View of restored gardens showing plants typical of the period, also brick walks relaid in accordance with designs established by excavating many overgrown walks in the city.



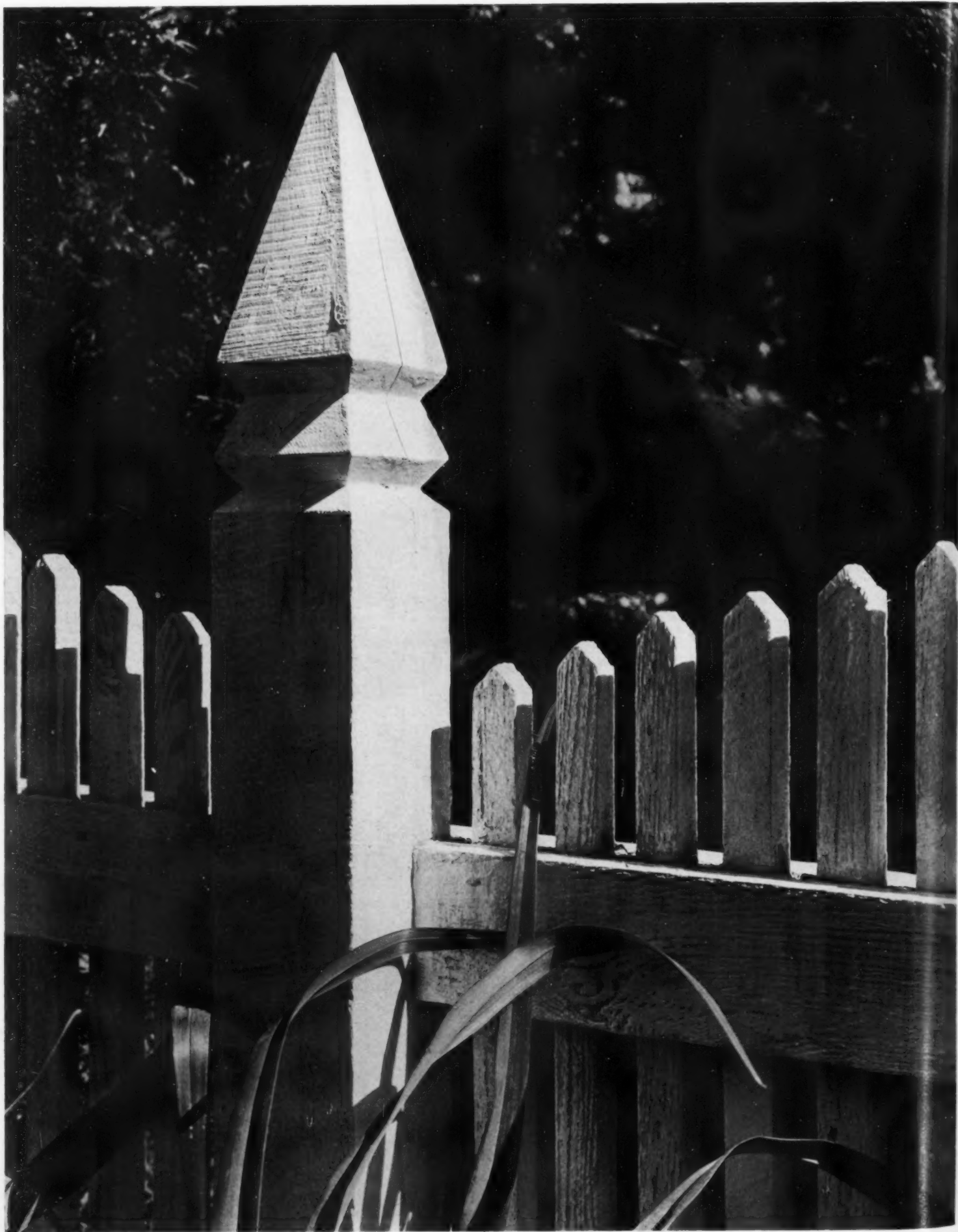


Photographs © F. S. Lincoln



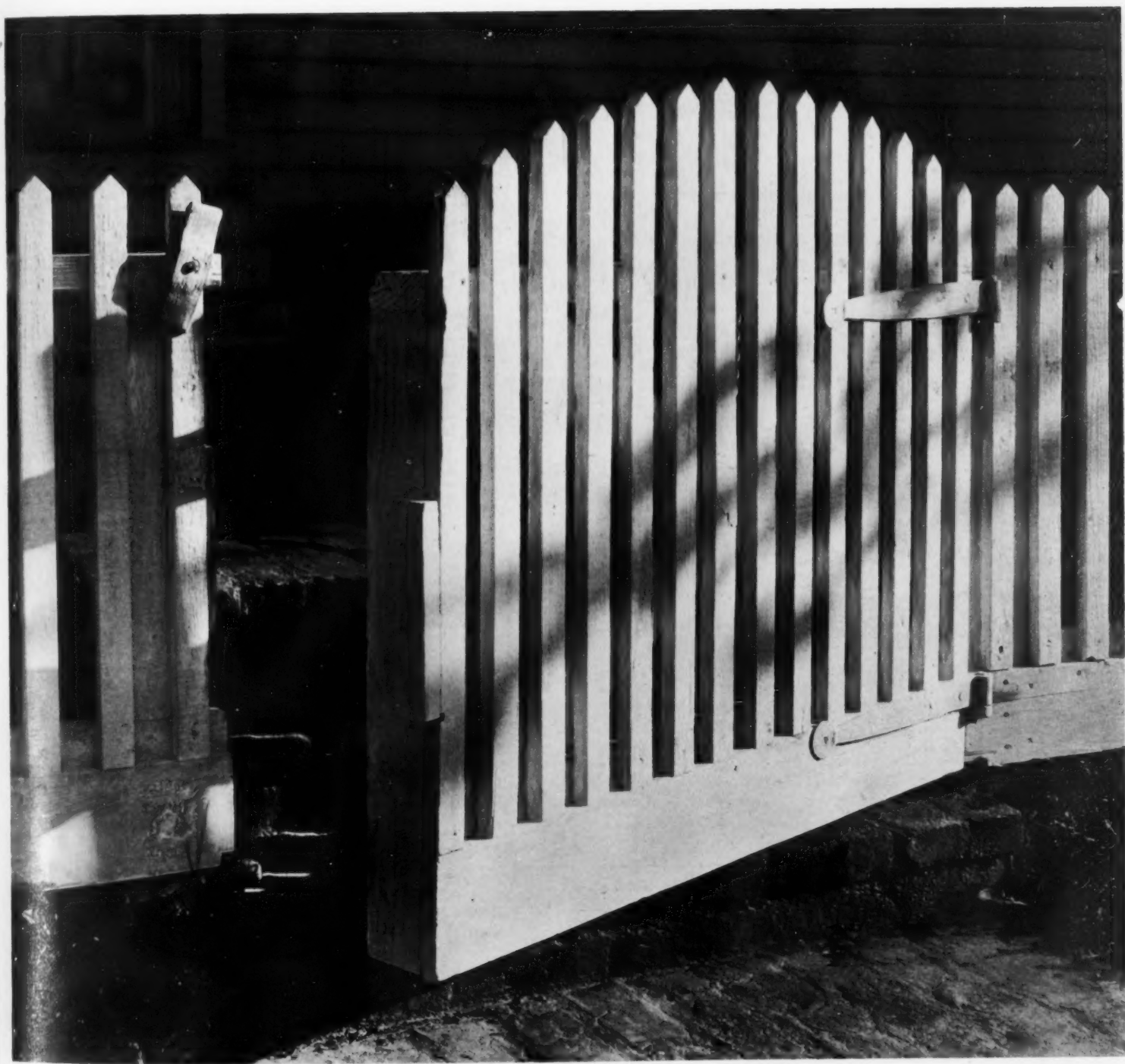
**Gate, Front of Lightfoot House.** Each garden of the town is inclosed with its whitewashed fence, reminiscent of days when cattle ranged at large in the city and citizens protected their shrubs and flowers from depredation.



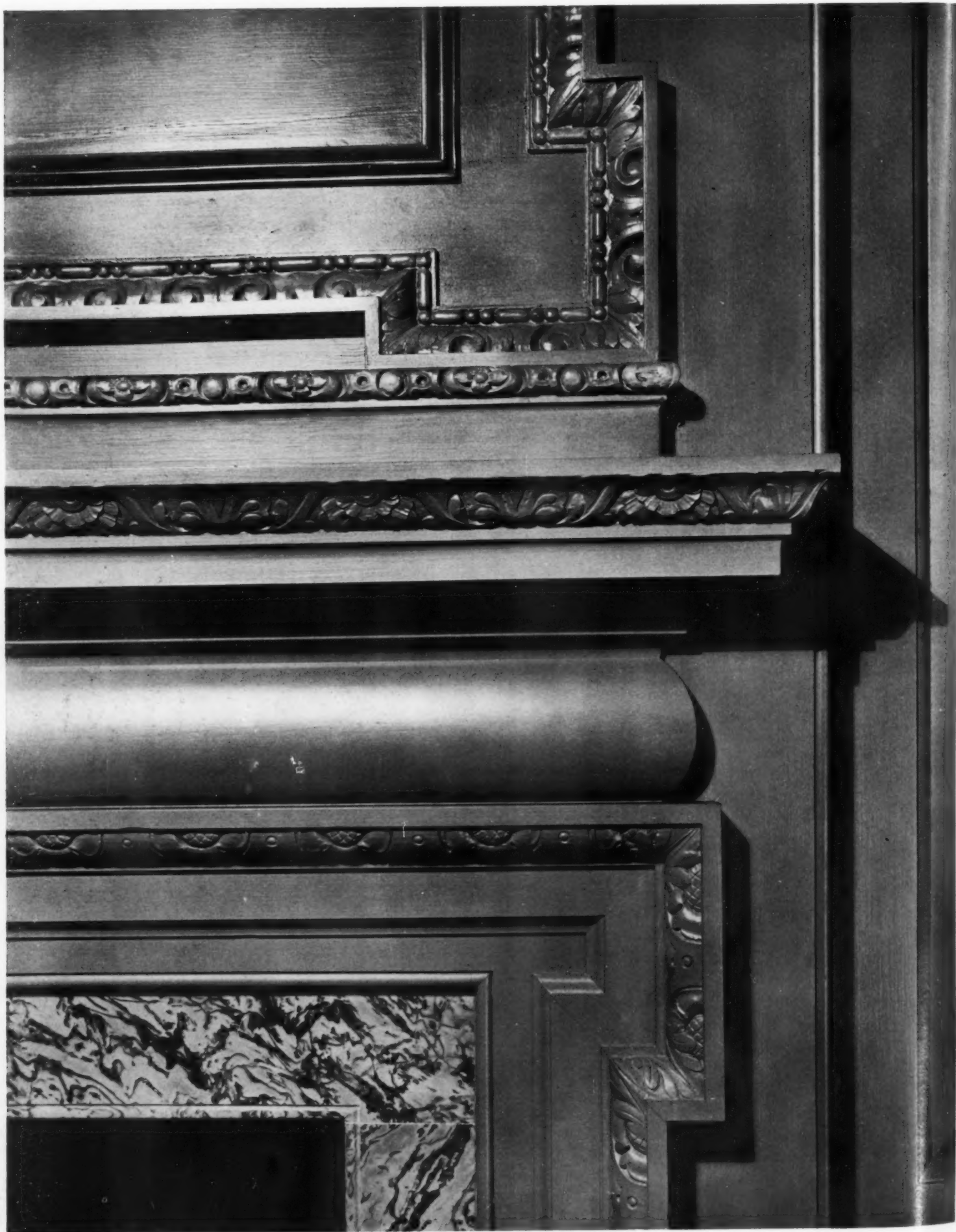


Photographs © F. S. Lincoln





**Gate, The Bracken House.** The inclosing of lots with "a wall, pales, or post and rails" was required of Williamsburg residents in the Act of 1699.



Photographs © F. S. Lincoln



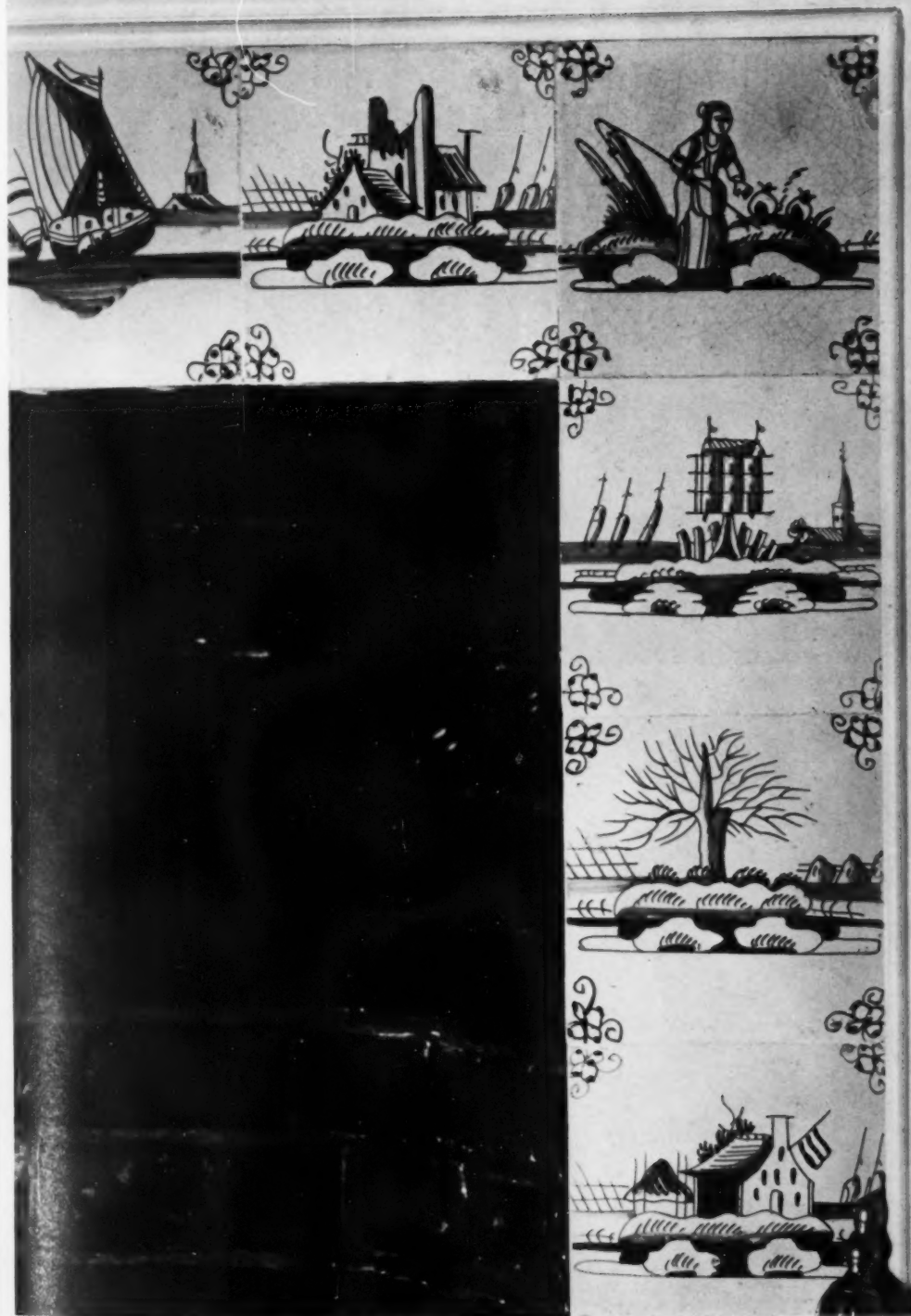
**Governor's Private Dining Room, Mantel Detail.** The facing of fleur de peche marble is used in view of the fact that fragments of this same marble were found in excavating near the chimney base for this room.

RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS





*Photographs © P. S. Lincoln*



**Fireplace Detail, West Front Bedroom, Governor's Palace.** Fragments of delft tiles were found in excavating the Palace site. Some of these have been reused. The tiles shown are old tiles purchased for the reconstructed Palace.





Photographs © F. S. Lincoln





**Ballroom Door Pediment, Governor's Palace.** The monogram, Georgius Rex, is inscribed on the pediment over the Ballroom door, as it was during the reign of George II that this wing was added to the Palace.



Photographs © F. S. Lincoln



**Ballroom, Governor's Palace.** The heraldic device above the door, the "Lustre" and the harpsichord, are indicative of viceregal luxury in which the royal governors of Virginia lived while Williamsburg was capital of the colony.

RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS 361





Photographs © F. S. Lincoln



**Mantel in Parlor, Governor's Palace.** When the Palace burned in 1781 its marble mantels fell into the vaults below, where excavation brought fragments to light. These served in the design of this mantel.

RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS **363**

*The Gaol was ordered built in 1701. It was completed by 1704, under the direction of Henry Cary, master builder, who was also overseer of Williamsburg's first Capitol. In 1711, the stringency of the laws against poor debtors caused a General Court Prison for Debtors to be added to it, and in 1722 the Gaol was again altered and a substantial addition was made to the Keeper's House. Throughout most of the eighteenth century, until a further addition was ordered to the Keeper's House in 1773, the Gaol had this form, and has been restored to the 1701-1773 period.*

*Henry Hamilton, the Tory governor of the Northwest, was imprisoned for almost a year after he had been captured by George Rogers Clarke at Vincennes. Hamilton had attempted to incite the Indians to war on the patriots; and for his tactics was called the "Hair-Buyer" and was treated with more than usual severity, being denied the privileges of writing, of sending out to the taverns for his meals, or of having bedding and other luxuries. The narrative of his imprisonment from his Journal is not only a vivid glimpse into prison life of the eighteenth century, but it yielded numerous and detailed references to the appearance of the Gaol's interior, and numerous features of its construction. (The prison cell described is not shown here.) Excerpts from this narrative follow: "We had for our domicile a place not ten feet square by actual measurements, the only light admitted was through the grating of the door which opened into the court. The light and air was nearly excluded, for the bars of this grating were from three to four inches thick. In one corner of the snug mansion was fixed*



Photographs © F. S. Lincoln



a kind of Throne which has been in use to such miscreants as us for 60 years past, and in certain points of wind rendered the air truly Mephytic—opposite the door and nearly adjoining the Throne was a little skuttle five or six inches wide, through which our Victual was thrust at us. It is not necessary to describe the furniture, as such folk as were detained to be residents here had no occasion for such superfluities. The Jaylor had not been long gone when I heard the noise of a flint and steel, a match was lighted, and by its light I espyed certain other persons who were utter Strangers to me. These worthy gentlemen when a candle was lighted offered me their services assuring me they were very sorry to see persons of our situation so hardly used. I must describe these persons as we shortly became acquainted . . .

"Mr. Speers be played on the fiddle, and perhaps to his enlivening strains I owe that I am able to write these Memoirs. A sailor who did not like staying on board was a third. They were all very fond of Mirth and Rum, the latter greatly promoting the former so that in a short time three of the six that we were, betook ourselves to dancing, but Mr. Speers was not firm enough to play and dance long so he sat on the throne, playing to the other Gentlemen, who may with propriety be said to have danced well. These good people however had the charity to offer us some rum which we were not so unwise as to refuse, so laying down in our wet cloaths on the boards we passed the night as well as we could . . ."

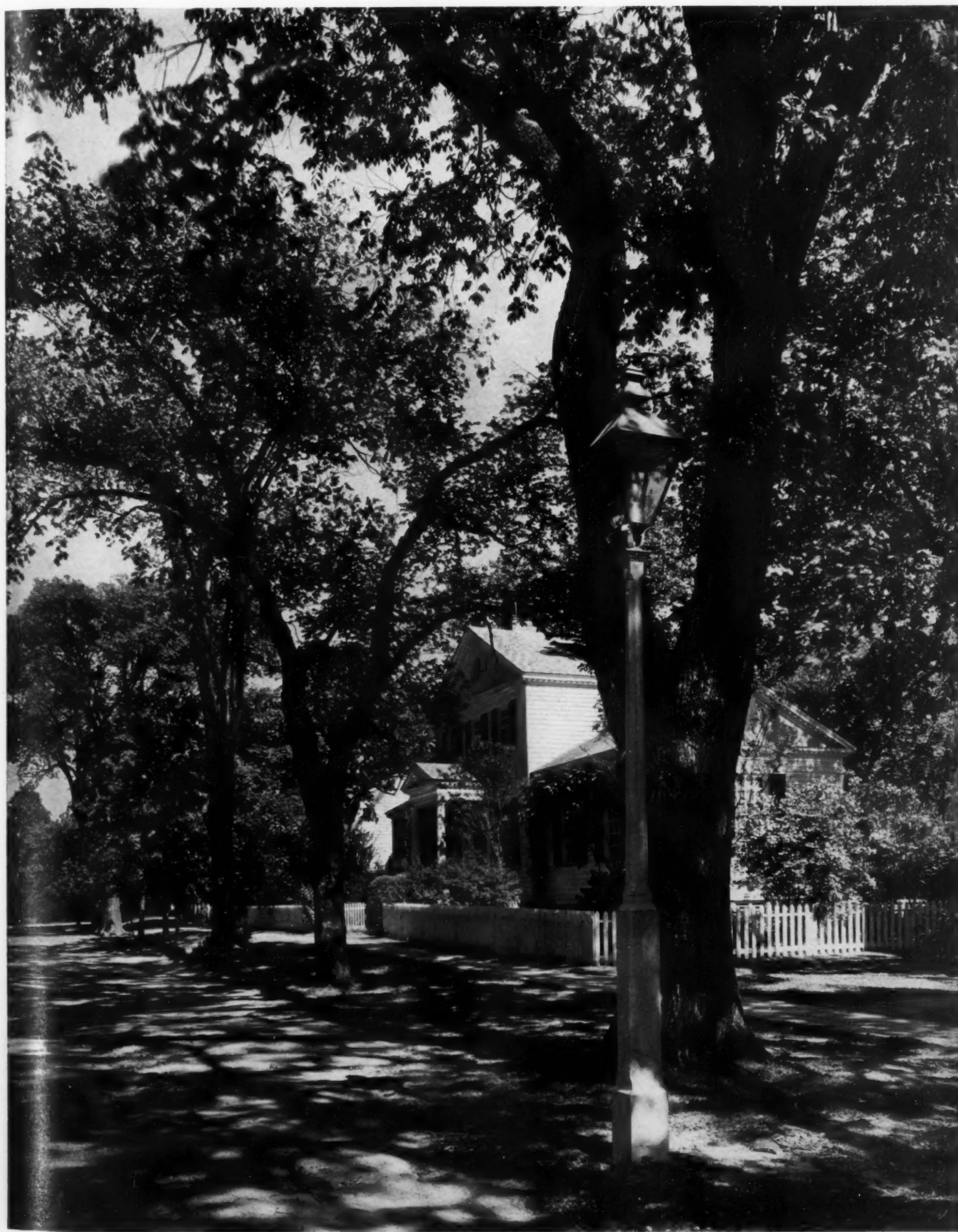


**Debtors' Cell in the Public Gaol.** Cells followed specifications of 1701, "underlaid with timbers under ground to prevent undermining" and the prison, made so secure with bolts, iron bars, heavy plank, was characterized in 1724 as "a strong, sweet Prison."



*Photographs © F. S. Lincoln*

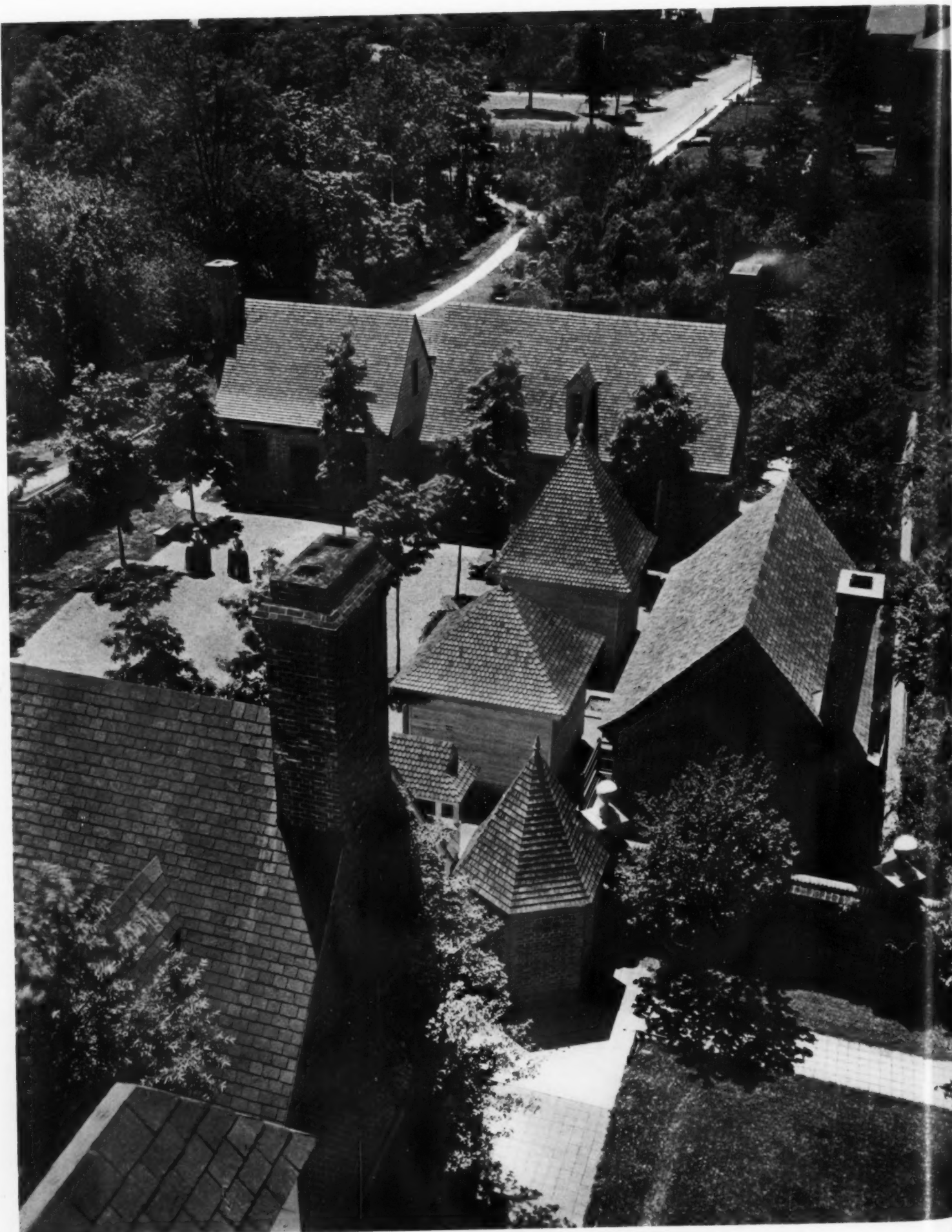




**The Semple House.** This house, built at the close of the eighteenth century, was the residence of Judge James Semple in 1799.

RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS 367





Photographs © F. S. Lincoln

**Outbuildings of Governor's Palace.** The outbuildings (some of which are shown above) included the kitchen, bagnio, laundry, scullery, salt house, smoke house, dairy, "necessary houses," the "Brick Quarter," the poultry house, and office.



**Garden of John Custis Tenement.** The plan of this box garden was adapted from those shown on Sauthier's survey maps made of North Carolina towns in 1769. Brick paths run between the geometric figures of dwarf box.





Photographs © F. S. Lincoln





**Holly Garden, Governor's Palace.** The grandeur of the Palace gardens was one of the features noted by all travelers through Williamsburg in the Colonial period, and the estate was considered "one of the finest in all British America."

RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS **371**



*Photographs © F. S. Lincoln*

**Lightfoot House.** Built in 1748 by Philip Lightfoot of Yorktown and "Sandy Point," Charles City County, this house is typical of the town houses of the capital during "public times."

Our  
home  
from





**Outbuilding of Kerr House.** Robert Beverly, 1722, wrote of Virginians' homes, "their drudgeries of cookery, washing, dairies, &c, are performed in offices apart from the dwelling houses, which by this means are kept more cool and sweet."

RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS 373





Photographs © F. S. Lincoln



**St. George Tucker House.** The St. George Tucker House, here seen from its box garden, was erected about 1788, though a part of it is believed to be an earlier building moved to the site at that time.









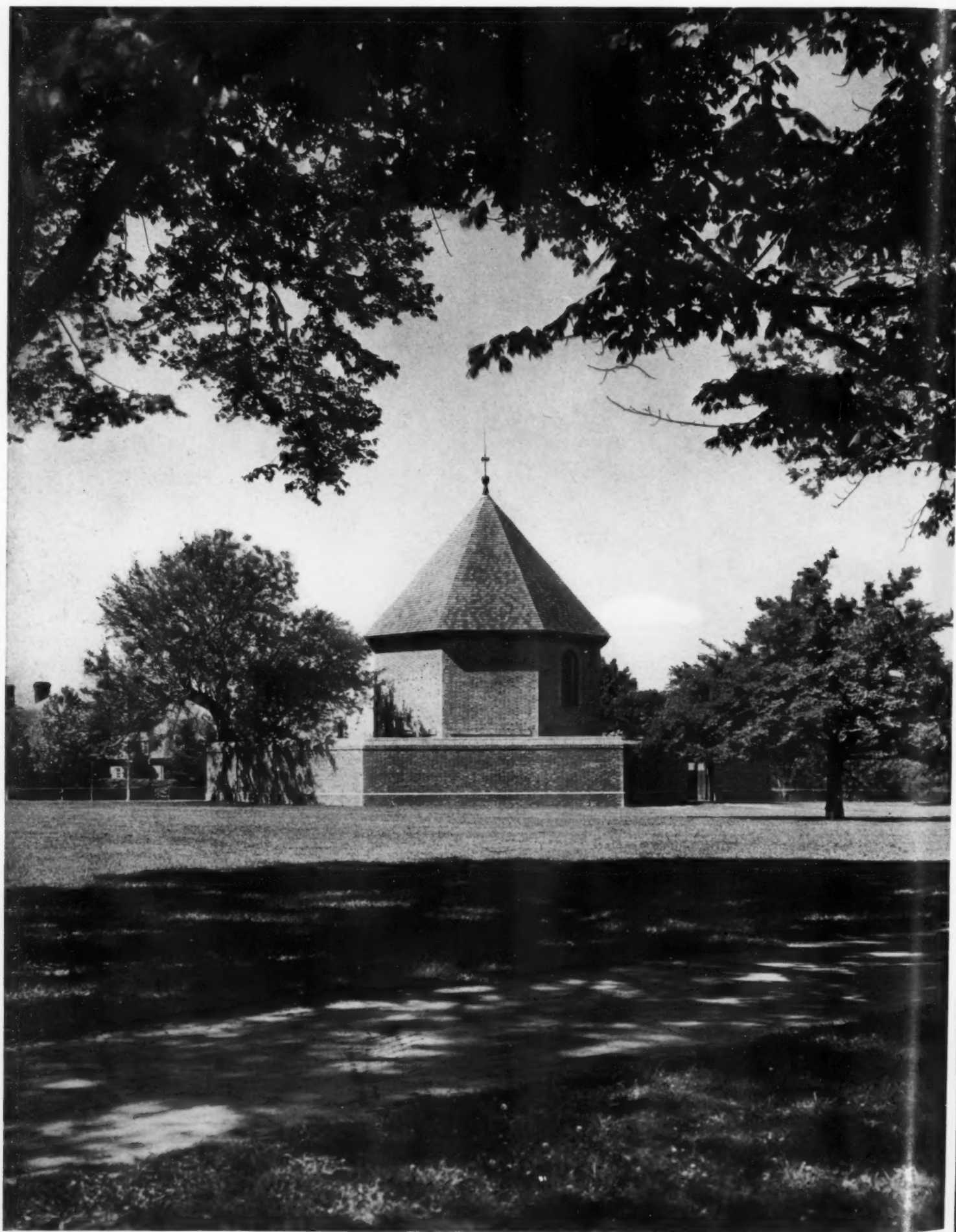
Photographs © F. S. Lincoln

*Erected about 1788 by a professor of law at the College of William and Mary, this house shows the trend toward linking kitchens and outbuildings to the main dwelling by "covered ways."*

*The house stands at the intersection of Nicholson Street and Palace Green. Just beyond the outbuilding shown on the left is the site of the first theater in America, erected on Palace Green in 1716.*

**St. George Tucker House.**

RESTORATION OF COLONIAL WILLIAMSBURG  
PERRY, SHAW & HEPBURN, ARCHITECTS **377**



Photographs © F. S. Lincoln

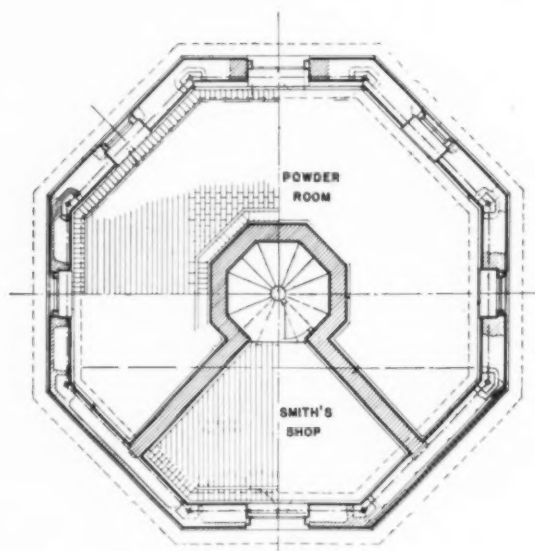




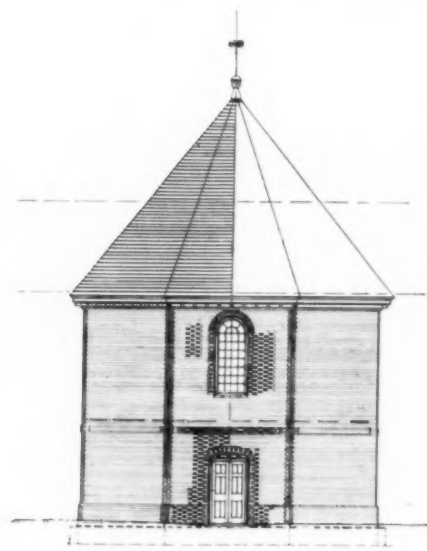
Restoration of the octagonal magazine and its surrounding wall was done by the Williamsburg Restoration in co-operation with the Association for the Preservation of Virginia Antiquities, owners of the property.

The structure, dating from 1714, had been used for a variety of purposes after serving as a magazine for many years. Examination of the walls disclosed how much of the original magazine had survived changes necessitated by different uses over a period of more than 200 years. One of the most important clues aiding the architects in their study of the building was the discovery of the foundation of an octagonal stairway.

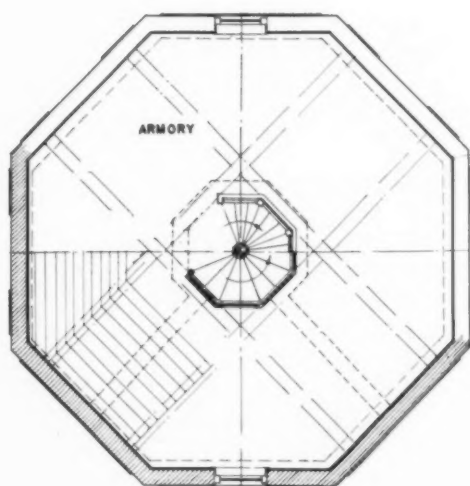
In the restoration of the magazine four of the eight walls were torn down to the second floor level. From this point to the ground level they were refaced, so that the brickwork in these walls of comparatively modern date might be replaced with Colonial type brick, made by hand for this building, matching the brick in the rest of the structure. The interior restoration of the magazine called for construction of the second and third floors that were in the original structure. An octagonal stairway supported by a central post extending the full height from the first to the third floors was also restored. The second floor framing is of wood and steel, resting on steel beams and columns that have been incased in concrete within the brick walls. This treatment will reinforce the exterior walls and relieve them of additional weight. A somewhat similar method was followed in the restoration of the Wren Building at the College of William and Mary several years ago. The first floor is finished in brick; the two upper floors in wood.



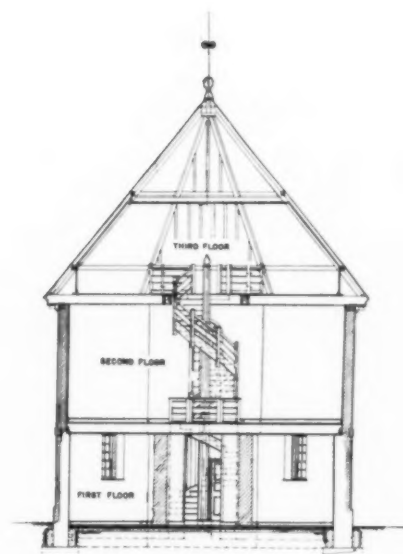
FIRST FLOOR PLAN



ELEVATION



SECOND FLOOR PLAN



SECTION

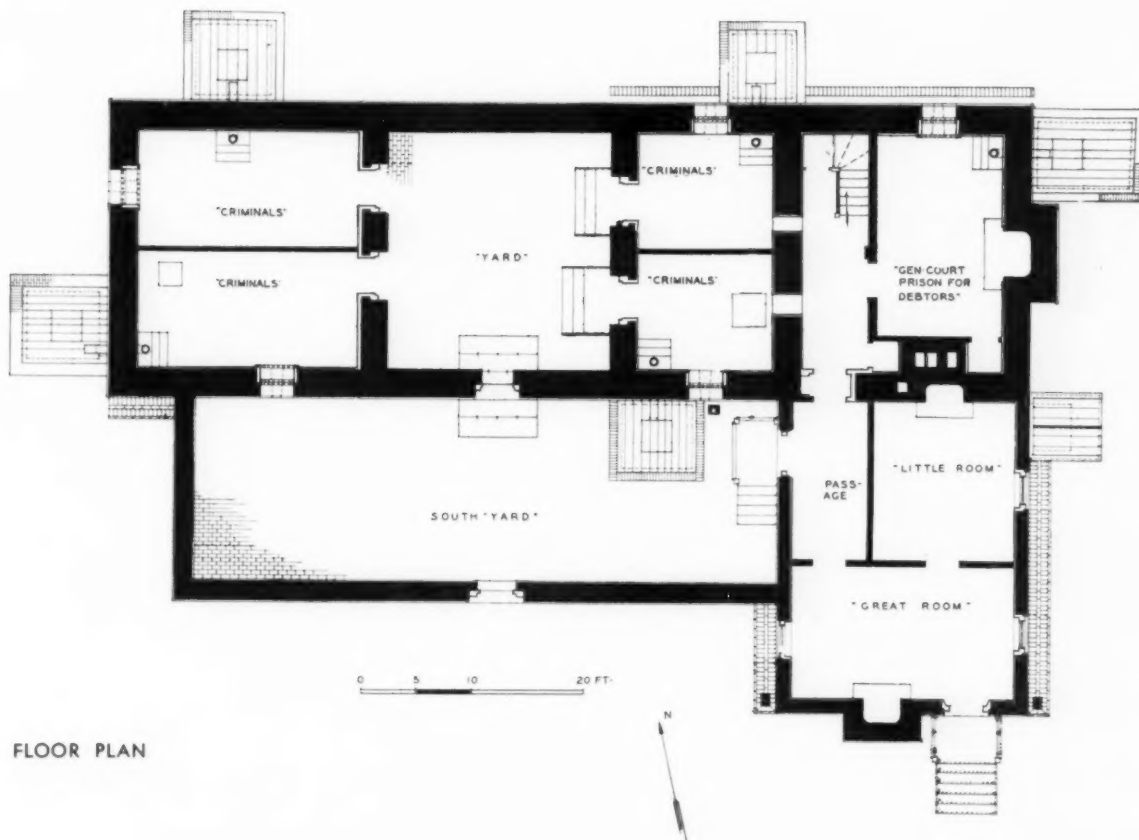


Photograph © F. S. Lincoln

### THE MAGAZINE

OWNED BY THE ASSOCIATION FOR THE  
PRESERVATION OF VIRGINIA ANTIQUITIES  
RESTORED BY THE WILLIAMSBURG RESTORATION

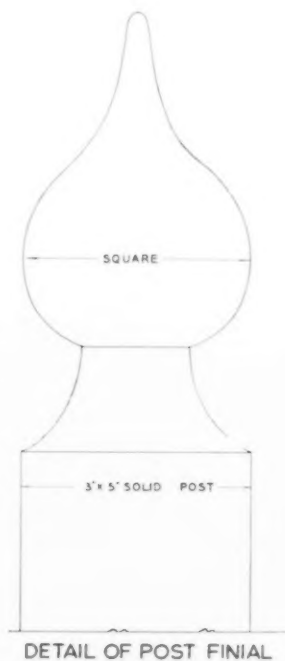
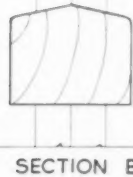
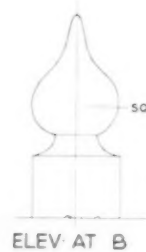
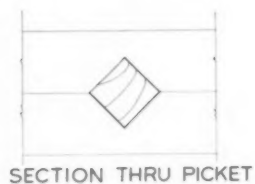
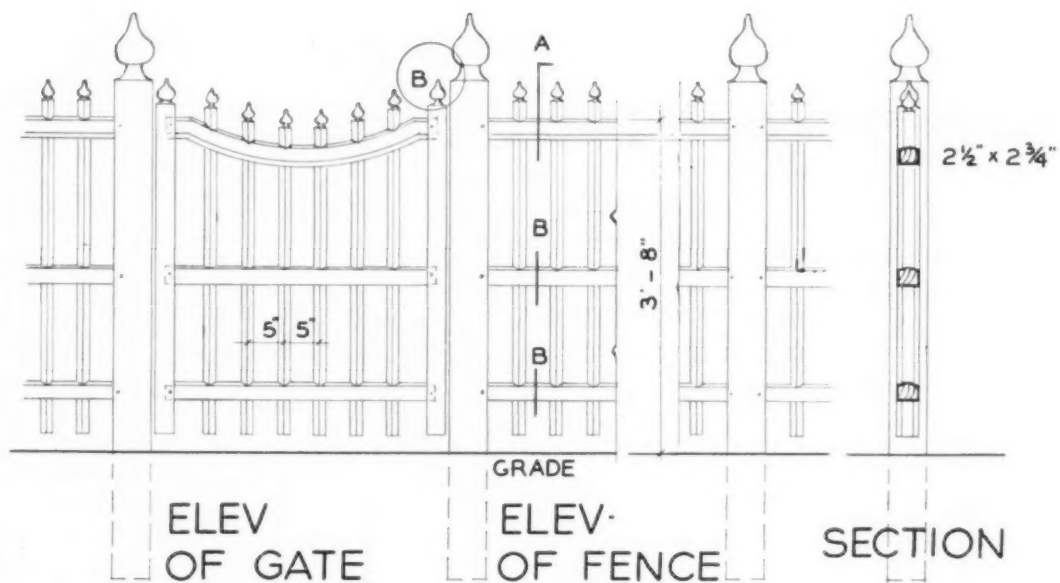




# THE GAOL

WILLIAMSBURG  
RESTORATION

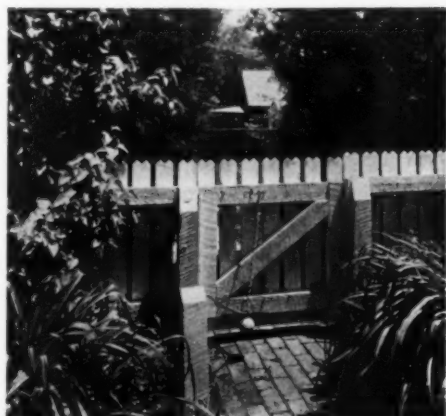
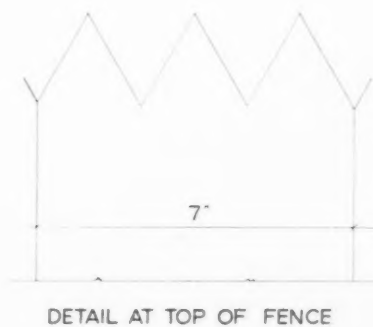
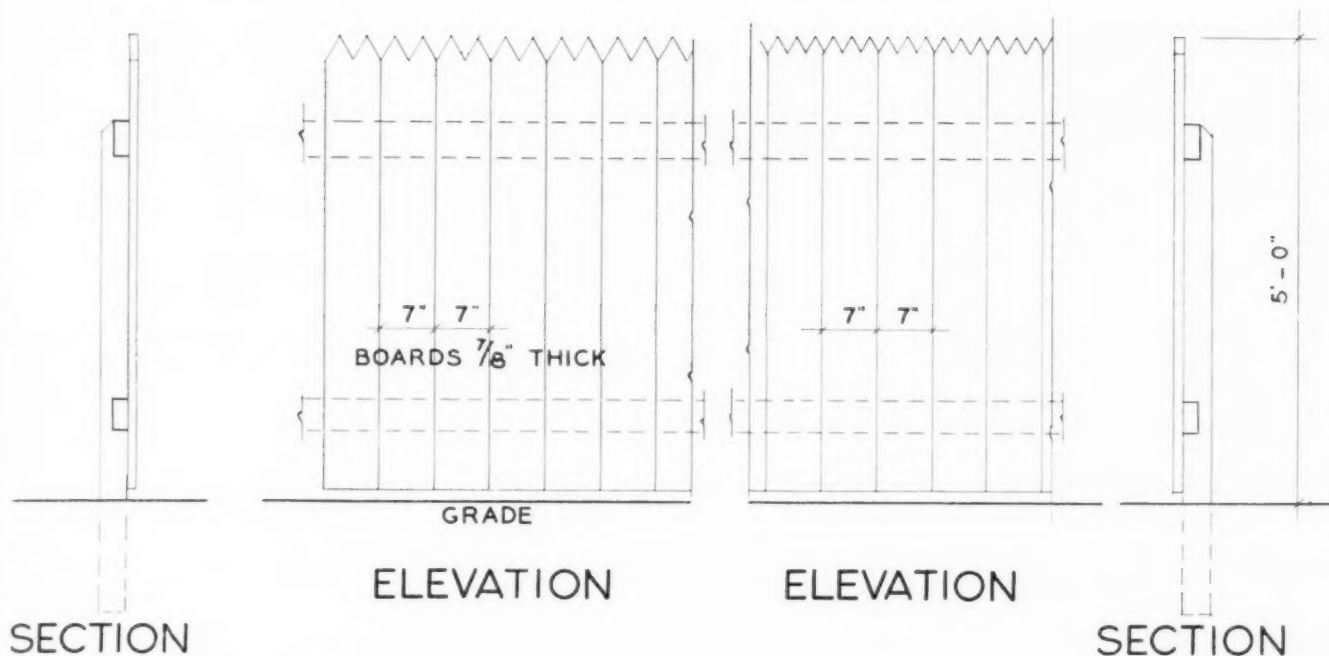
PERRY, SHAW & HEPBURN, ARCHITECTS



Photograph © F. S. Lincoln

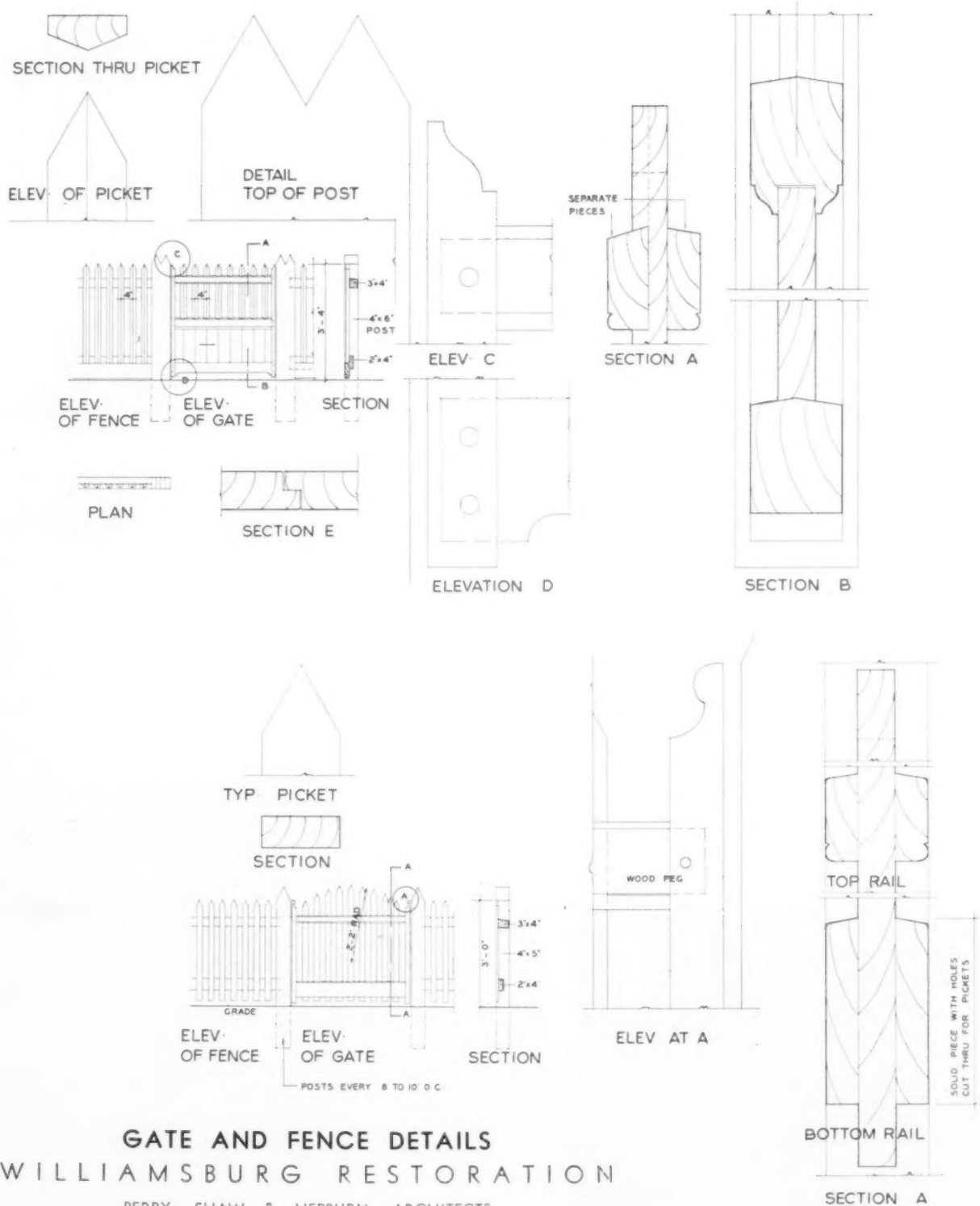
PICKETED GATE AND FENCE  
WILLIAMSBURG  
RESTORATION  
PERRY, SHAW & HEPBURN, ARCHITECTS





# BOARD FENCE

WILLIAMSBURG  
RESTORATION  
PERRY, SHAW & HEPBURN, ARCHITECTS



**GATE AND FENCE DETAILS**  
**WILLIAMSBURG RESTORATION**  
 PERRY, SHAW & HEPBURN, ARCHITECTS

# FACADISM

by **RUSSELL WALCOTT**

In Howard Shaw's office almost twenty-five years ago, a stranger turned up in the drafting room one morning and was placed at a table next to mine. Within the first half hour he let it be known that he had worked with Charles Platt and professed to have known Stanford White almost like a brother. The old fellow was an amusing wreck. In a shiny soiled suit, with a frayed Vandyke beard half covering a dirty collar and a black string tie, he looked like the typical "artist" of those days. He would draw languidly all day, smoke countless cigarettes, destroy roll after roll of tracing paper, all the while mumbling hazily and half audibly to himself, and accomplishing practically nothing for the benefit of Mr. Shaw's purse. I remember how he amused us by his formula for being a successful architect: "All one has to do is to sit in a beautiful, paneled office in an immaculate white flannel suit. When a client comes in, don't notice him. Just look at the ceiling and murmur, as if to yourself, 'Exquisite! Exquisite!'" Then he'd chuckle a little, light another Egyptian Deity and add, "Yes, create an artistic atmosphere and you cannot help being a success."

I suppose he never tried it out, because there was small probability of his ever having a white flannel suit, to say nothing of keeping it immaculate. I never tried it either; but in those days, although his theory was exaggerated and absurd, there was more truth in it than there would, or could, be today. For architecture then was stylism, sometimes pure and almost always simple; and not many architects had yet emerged from their ivory—or celluloid—towers, those secure book-lined fortresses of precedent which kept them and their goddess Beauty insulated from defilement by the modern world.

Not all, but most of us, in those pre-war days, had been educated to believe that architecture was simply a succession of styles and that it was neither right nor proper to break too far beyond the rules of these styles as they were handed down to us by Vignola or Palladio or Scamozzi or Blondel. It had already grown necessary sometimes to make restrained concessions to the needs of modern life, for the elevator, rising real estate values, subways, and the chugging auto were changing the tempo of our cities even then; but most of us, looking out from our high sacristies of art, just got down another book and learned how to add adroitly another "order" to the lower tiers of columns. And thus we appeased the needs of business for a while and kept the goddess sacred. When there was a residence to do, we could always look into the "White Pine Series" and concoct an authentic Colonial. Architecture was tradition, tradition was style, style was always decoration—the costume in which we dressed the skeleton of lumber, concrete, and steel. And there we were, placidly content in the security of a creed which told us what was art.

It is not unfair to say that when we planned we always had a style for the building in mind so that the use and meaning of the plan was often limited by the aesthetic demands of that style. I think no one will deny that facades were much more important than plan or than the economics of the structure. This was the holy doctrine of Blondel which, alas, is still held sacred by many aesthetes in 1936.

One of the really enlightened competitors in a recent government building competition told me that after receiving the program he thought it would be helpful to talk to the individual whose job it would



## FACADISM

be to manage the building in the future. So he spent several hours with that practical man, learning facts about the department and its workings, finding what was the most desirable column spacing, story heights, elevator capacities and locations, the probable growth of this and that section, how best to light this portion and that, what divisions needed certain storage space immediately available and what kind and why, and what was the most efficient means of connecting and coordinating the different parts of the office force. In a couple of hours he collected a good many important facts which were not thoroughly covered in the program nor available from the Fine Arts Commission. As he rose to go, he thanked the building manager for giving him so much time; and to his astonishment the manager thanked him, saying: "I appreciate what you have done. It is most unusual. In all my long experience, and in the experience of many other men I know whose job it is to operate departmental buildings here, you are the first architect who has ever consulted one of us about the practical operation of a government building before the scheme, in general, was decided on."

Architects, of course, were not the only ones who were trained to think of architecture as a succession of styles. It was the popular conception, particularly emphasized by the privileged few who were able to toy with expensive domestic architecture. Before the depression almost all clients—fully ninety per cent of mine—came in with a picture of a pretty house they had clipped from a garden magazine, or at least with a burning desire to materialize the memory of some lovely setting they had seen in their travels through Europe, New England or along the James. Appearance was their first thought, almost always, and thus the plans of these suburban houses became, in the manner of Blondel, "convenances" to be fitted to a scenic shell as best one could. Residence architects didn't mind; it was so easy, provided they had a few shelves well filled with books.

Easy at first. But during the decade of the twenties, I noticed that this method of approach became harder to follow successfully. And the reason was that business, with a constant outpouring of new devices and materials which added to our comfort and pleasure and a little to the efficiency of building,

was complicating and confusing the ancient archaeological principles of design. I noticed that the industrial architects were beginning to break free from the past but domestic architecture didn't; it stuck doggedly to the old way, trying to hide the new things under the synthetic scenery of any chosen age, although with increasing difficulty and expense. They tell me that one of the librarians who presided at the lectern in Yale's great cathedral of literature, "where nothing is quite what it seems," had a sense of humor about this attitude of ours. On Washington's birthday, when a lot of alumni come back to look around, he hung a sign on the aged (with acid) latch of the worm-holed (with an awl), antiqued (with a sandblaster) portals which read: "Gentlemen, the Library Is Inside."

And yet, in spite of our efforts to preserve tradition, business with its insistence on new things and particularly with its methods of creating them by mass production which employs economy, accuracy, continuity and speed (elements which domestic architecture abhorred), kept forcing us to face around. The result was that domestic architecture got trickier and trickier because we kept trying to use the modern techniques while still stubbornly sticking to the sentimentalities we thought were art. The strange thing was that only a few of us noticed our own confusion. Why, in 1927, when a client asked me in all seriousness if the fireproof "Colonial Farmhouse" we were building for her could be made safe from injury from a falling airplane, I only laughed and said: "If you can tell me how far the plane is going to fall and at what speed, I think I can get an engineer to figure it for you." The real absurdity of her question never reached my mind.

I who was one of the worst archaeological scavengers began to be bored by the results I was producing; but I didn't understand the reason for my boredom nor did I try to understand, until one Sunday afternoon when I was suddenly shocked out of my complacency by a trifling event which no one else probably noticed.

I had just finished an Elizabethan house for an Indiana broker. Behind the paneled walls and underneath the flagged and punched floors everything was strictly fireproof; in the knotty pine bookcases of the library whose design we had pilfered from the Metropolitan, was space for an experi-

mental television set ingeniously concealed; underneath the old oaken stairway was an outlet for the most modern humidifier we knew how to specify in those days before the use of air conditioning became common; within the oak panels of another room was a secret door giving access to a practical laboratory with vent ducts, zinc counters, and a hundred twentieth-century gadgets. Outside, the ancient sagging roof, which rose above the half-timbered walls, concealed aërials for sending and receiving messages by air; each heavy roughened slate was held in place by copper nails and each dowel in the rugged timbering covered a bolt by which the "hand-hewn" tracery was fastened to the structure underneath. In some of the leaded windows was a picturesquely broken pane, and if you looked carefully you could see a little wire that instantly hid itself inside the wall but could carry messages in an electric jiffy to a burglar alarm. And out of one of the lovely, old, twisting Tudor chimneys I knew there came a vent from the gas boiler in the basement.

But that Sunday afternoon the lay person saw only the gables peaking through the trees, noticed only the discolored stones, the soft effect of rough brick walls, the half-opened casements—just picture glimpses from the sunken garden of a nice old English house. And I, with a highball in my hand, was warm with satisfaction because some people at the party had said they liked this pretty scene that I had helped to make.

And then the terrible thing happened. The owner, arriving late from a hurried trip to New York, set his autogyro down upon the lawn not two hundred feet from my medieval scene. The soda in my drink got flat. He had not staged this awful contrast but it was a shockingly successful demonstration of the extent to which I, and my contemporaries, had gone in our unconscious perpetration of lovely anachronisms. It awakened all my sleeping suspicions about the value of my sometimes pretty contributions to the thing we called architecture; and it suddenly made me want to try to think. So as soon as I could, I maneuvered my mass production coupé out from the shadow of the six-car, fireproof garage that looked like a 17th Century tythe barn in Gloucestershire (which formed one side of the cobbled court), and motored home moodily while the satisfaction of being considered a successful residence architect in

1928 dimmed considerably. If architecture was scenic design, then I was all right; but I began to suspect there ought to be more to it than that.

Certainly it was ridiculous to keep on trying to fit modern mechanical conveniences into the shell of some adapted style which once had meaning and purpose but now no longer did. Soon, perhaps, it would be impossible to make most of the popular styles of architecture fit the requirements of modern life, modern living was changing so from the quiet, secure existence it once had been. If our sense of humor failed to save us, then business would, inevitably. We couldn't go on this way much longer without going nuts.

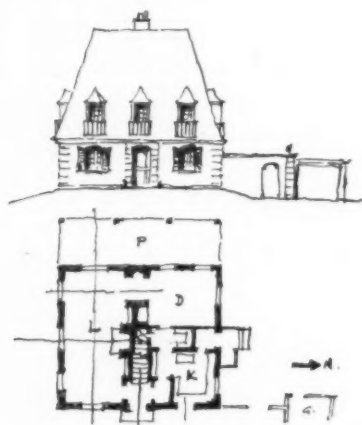
But it was a difficult problem. I didn't want to go in for this new style which some called "modern" and others "modernistic." I had done a couple of bathrooms in the latter style and I didn't like to think of them. Even if I had the courage and the ability to be rational about architecture, how would a well-grooved practitioner like me start to go about it? There was only one answer. Thinking. You had to find a way into the unknown by yourself, without help from any one—even a client; you had to dig into the secrets of honest architecture all alone; no more copying or adapting even from the most modern past of Le Corbusier or Gropius or Van der Rohe. That was the trouble with the products of most of our new American opportunists who were already treating the philosophy of these modern thinkers as just another fad in decoration.

To acquire a respectable knowledge of new materials and to learn how to use them efficiently would require more imagination than I had ever had to draw upon, because the limit of imagination had been the size of my library and the number of my trips to Europe. If I didn't look at my books, it might prove whether, after all, I had the capacity for any real imagination. I didn't like to take this horrible risk of finding out; but by the time I had reached home that Sunday evening, the prospect of the new adventure in imagination seemed to have infinite possibilities for interest which the old way didn't have, and it seemed worthwhile to try it out.

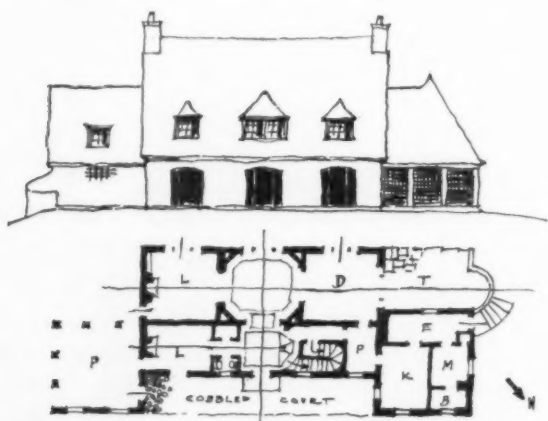
With satisfaction I soon began to see how far ahead I was of that time in 1920 when I first designed a house for myself. It had been a puerile, stagey casing for a compact but badly handicapped

## FACADISM

little plan. It looked like this:



The second one, in 1929, I had labored long and hard at. It was drawn in the years of my first questionings when I was trying to think and not to copy. But I hadn't then learned to break away from the old habits of design and in two years of serious struggle I accomplished nothing discernible. However, having the money and wanting a house, tired of trying longer for the ideal that was beyond my reach, I finally knocked out another meaningless style chassis that crippled what might have been a nice plan for that site. The scenery is of the same popular type as No. 1, although on a grander scale of cost. Only one thing did my tired ambition achieve: while the front is as stereotyped as a shoe, the living side has wide, muntinless steel doors from floor to ceiling that no "Provencal" cottage ever saw. Frankly, the big dark masses look like hell from the lawn, but who cares? We live nine months of the year inside looking out and the clear expanse of glass is a great satisfaction.



Since 1930 I have been working "off and on" at

another plan. I knew why I had failed so dismally with my second house and wanted to try again. Meanwhile I watched a thousand new materials come on the market, saw a hundred different types of prefabricated unit houses given publicity and slowly became accustomed to the starkness—or cleanness—of modern forms in industrial design as well as in architecture. An inherent beauty born from the spirit of honesty and use seemed to be entering these forms. Realizing that I would still have to erase a lot of prejudices if I was ever to approach the interesting concept of architecture I was searching for, I began to clear away many old restrictions that had been imposed by education, custom and sentiment, while trying to retain those ideas which were intelligent and useful. That sounds easy; but try it sometime! I knew I was through with lots of things: axis lines that looked swell on a drawing but led up blind alleys actually; the imposing effects of wasted space; those picturesque sloping roofs that had so crippled my first two second floor plans; and the bottleneck dormers that necessarily ensued; garage connections through kitchens to the hall (for I employ no chauffeur and usually enter and leave the house in a car); muntins in windows; double-hung windows; wood floors that continually need waxing and often refinishing; niggardly little cornices in places where protection is needed from rain or sun; and many other habits I could reject now for personal reasons but had often fought hard for.

I find I want to relate the inside plan to the outside plan more completely and effectively than I ever have, and to make the plan satisfy scientifically the demands of climate and the requirements of site as far as I am able, to secure a pleasant life for my family rather than to please the conventional eye of a cautious stranger who may drive along the road. I want to make the layout compact (although that does not necessarily mean small), comfortable, convenient and as effortless as possible both in use and appearance. I want it to be flexible, because I found in the two other houses that flexibility is a valuable element for my family today. Once, "circulation" was supposed to render rigidly fixed spaces usable, but I find that if I can make these hitherto fixed spaces usable for different purposes at different times it is better for my manner of living than to

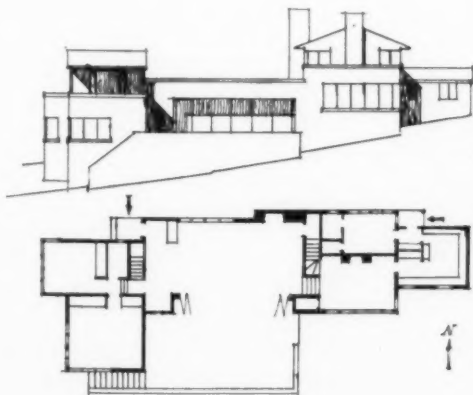


depend on circulation. For instance, I want my guest room to be usable when there are no guests, my dining room for other purposes than a display of Sheraton furniture and Sheffield plate after the table has been cleared three times a day. I know this is not considered good social form but the practice has not yet been declared unconstitutional.

And, lastly, I want to use honest, durable, practical, and economical-in-the-long-run materials; but not necessarily local ones, because distribution has solved that problem today.

Those are some of the things I believe must be worked out before I even dream of an elevation, if I am ever going to achieve an honest house for myself or any one else and at the same time get a little closer to real architecture. They are more important, I think, than copying beauty from books. Just now, at any rate.

Instead of designing a scene for some engineer to figure later, as I used to, I was surprised to find that I was working from the first at a structural solution to the space arrangement I had in mind. It was hard to find an imaginative engineer who would work along with me, probably because we architects with our "cultural" processes had dulled their imaginations, too, but gradually we evolved an arrangement of structural points on the plan which would support any sort of a shell securely and then we could fill in the partitions and windows wherever we wished. The freedom of the process is astonishing to one who has worked all his life within the confinements of a style. This is what evolved.

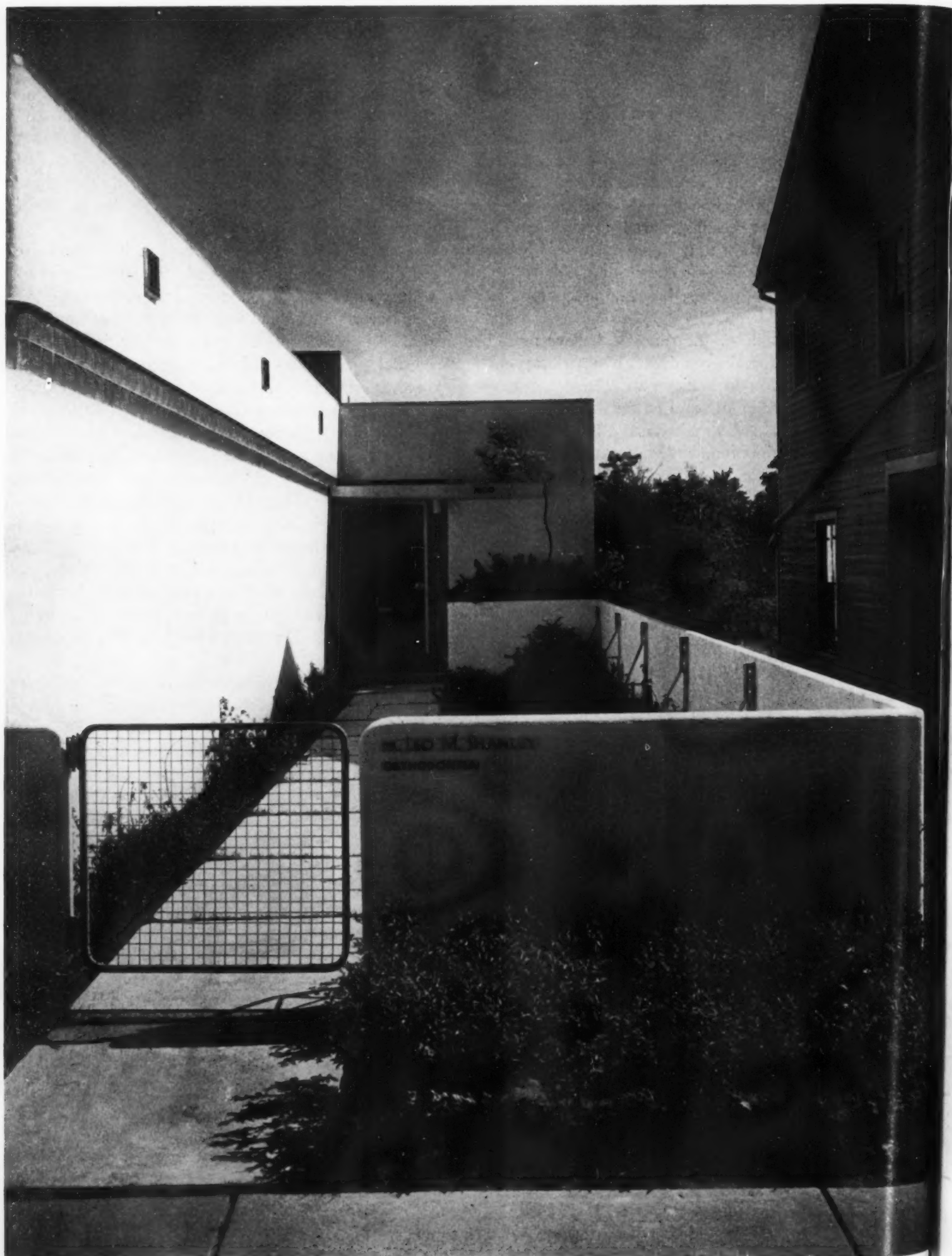


I present it not with the slightest idea that it is perfect or even "good" architecture, but because it seems to me to show that progress is possible even

in a facadist's mind. And now, having exposed my personal ambitions to the ridicule of those who still exist in ivory towers, to those high priests of art who know so definitely and surely that only the old forms of architecture are worth their while, to those well-smocked beings who speak so learnedly of "beauty," I can add only this.

I know of no set of rules by which architecture can be achieved. I've read of "the eternal laws of beauty and composition, form and decoration" but I've never found them written down—not any laws that one could call eternal. Beauty is certainly eternal but the laws of its form and composition and decoration, I think, are not. Can any one define the thing which makes such varied forms as the Taj Mahal, the Parthenon, Hagia Sophia, Chartres, the Carnavalet and, yes, the Washington Monument and even the San Francisco bridges accepted by different yet knowing eyes as being types of beauty? All we know is that the spirit in them can be felt. But we also ought to know by this time that we cannot copy the inspiration that makes one of these forms beautiful to you and another more beautiful to me. We can copy the form of it but we can never steal its spirit. Somehow it isn't possible. And yet, how hard we have tried!

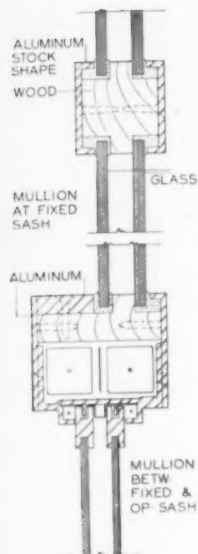
Lately, some men have come to believe that there is only one way to achieve the essence that makes architecture—or anything else—eternal. They feel that when our dead trade becomes again a living expression of its own civilization—not of that of its ancestors—then inspiration which is the spirit of beauty will become possible. Only a few men have been trying the experiment and for such a little while; but already in some of the most recent attempts to express our own age in architecture a certain spirit has entered them and has changed their forms, not willingly but inevitably, to shapes which are strange to our stylistic traditions. And the authors of these attempts feel this is progress. Since there are no rules by which we can arrive at beauty quickly in these new forms, they believe that if we keep on learning facts and working honestly to express those facts it is not impossible that some day, somehow, some inspired genius will use the results of our crude and wishful experiments to achieve that beauty which we were never near. As Ictinus did long ago.



Photographs by Alexander Paquet

# BUILDING FOR DR. LEO SHANLEY CLAYTON, MISSOURI

HARRIS ARMSTRONG  
ARCHITECT



Section showing double-glazed, fixed and operating windows.

Dr. Shanley is an orthodontist. The greater number of his patients are children between seven and eighteen years of age.

## SITE:

A site was selected at the extreme edge of a business district in Clayton, a suburb of Saint Louis. The lot pitched southwardly about ten feet which gave an opportunity for two large rooms—the waiting room and the playroom directly below it. The latter is located at the sunny end of the building, leaving the long east side of the property for workrooms which open off from the corridor. This corridor is lighted by a narrow row of glass blocks shown from the approach. This scheme produced an entrance courtyard and removed the door from the noise and dust of the street. In bad weather cars can be driven under the south terrace and patients may enter the building at that level.

## DETAILS:

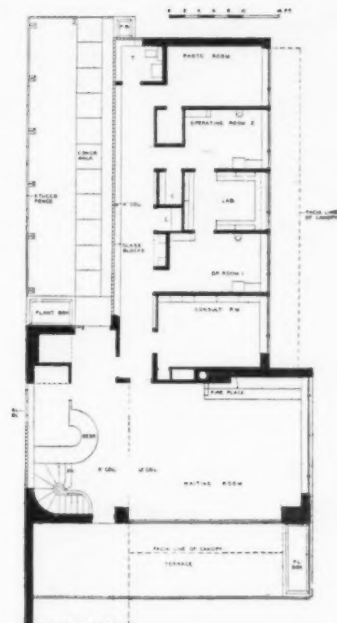
Considerable time was devoted to study of the technical details of the work to be done in the building, and one result of this study was the placing of the dental chairs very close to the side wall and the windows of the operating rooms. This made it possible to support all the equipment from the walls, and resulted in an unobstructed and easily cleaned floor.

Most of the equipment was specially designed, including hardware, light fixtures, movable lamps, and furniture.

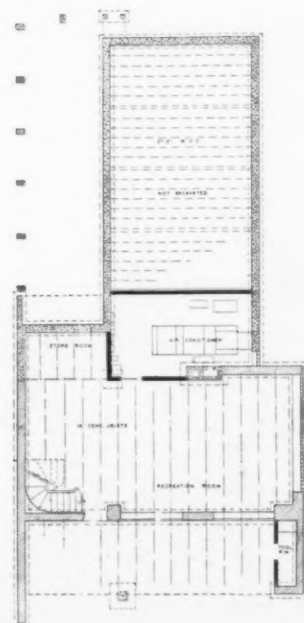
The fixed, double-glazed windows are shown on an accompanying drawing. The air space of fixed windows was dehumidified with calcium chloride in a metal box located under the windows. It was found to be an expense which would pay for itself in about three years since the building is mechanically cooled as well as gas heated.

Awnings for the two large windows help to reduce the transmitted sun heat as does the aluminum paint on the roof. There is a free circulating air space just below the roof and above the ceiling insulation.

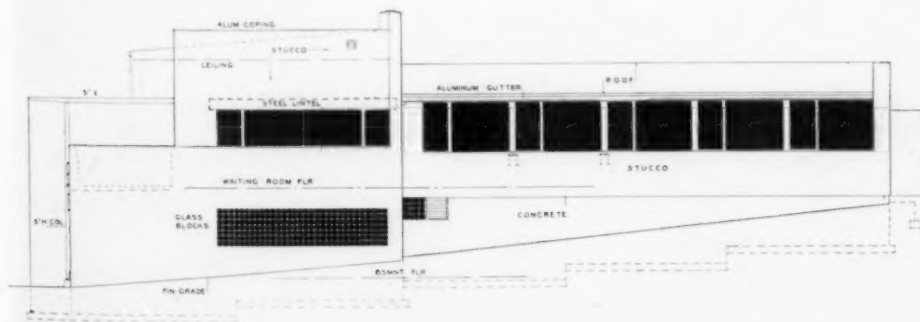
## PLANS



FIRST FLOOR

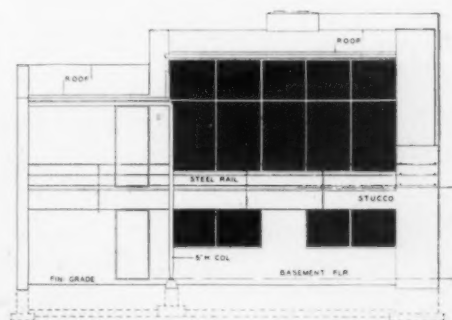


BASEMENT



EAST

ELEVATIONS



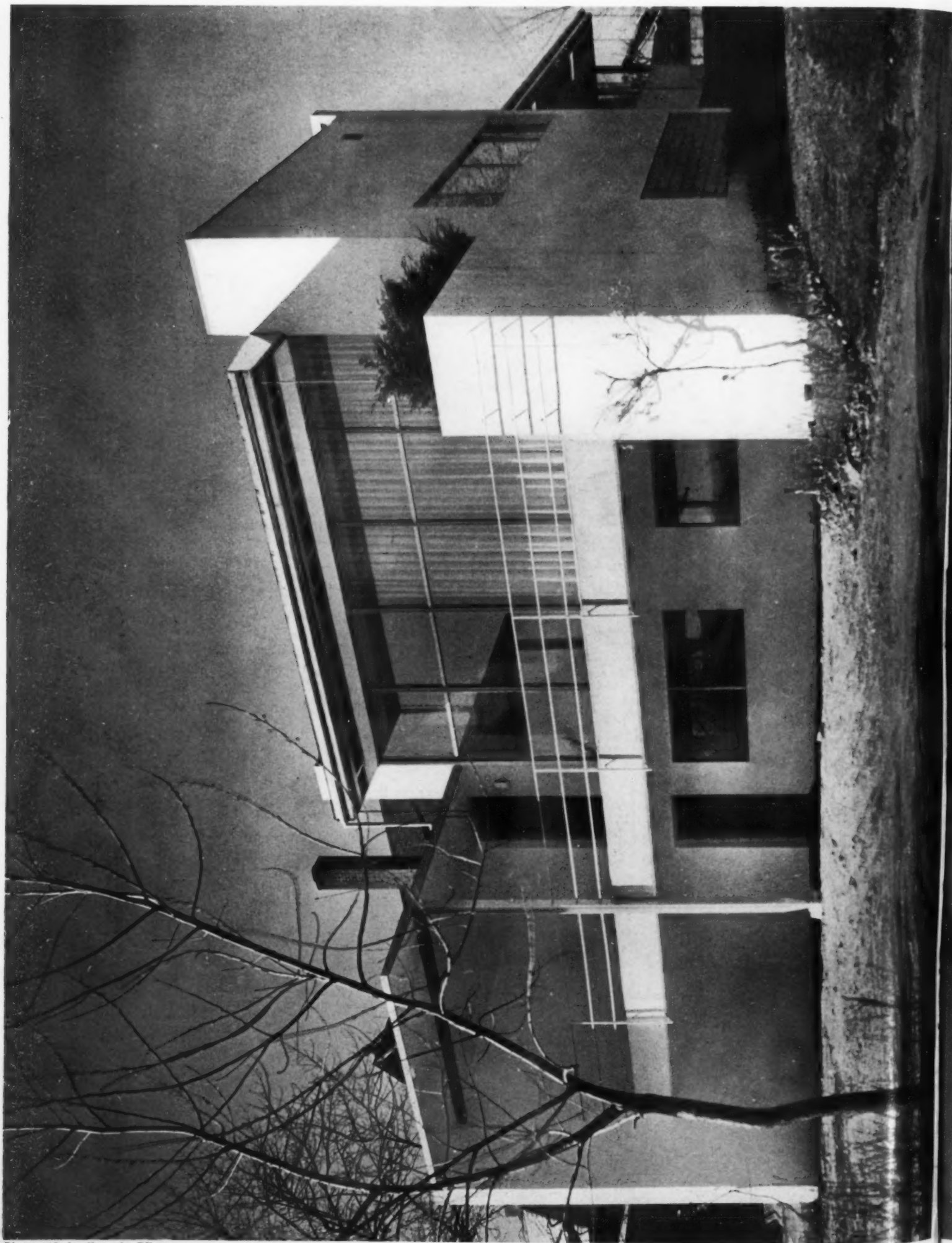
SOUTH





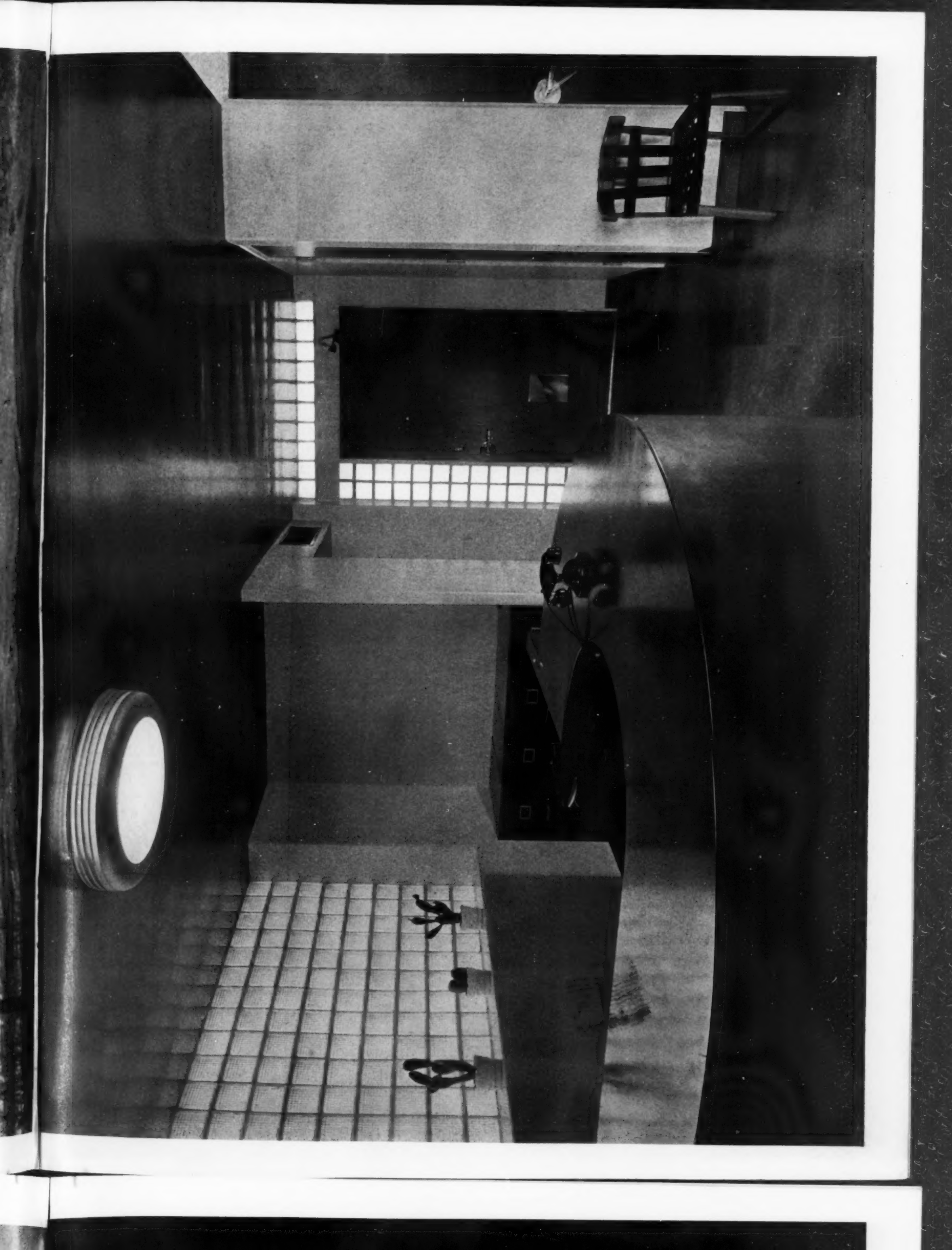
Photographs by Alexander Piaget





*Photographs by Alexander Piaget*







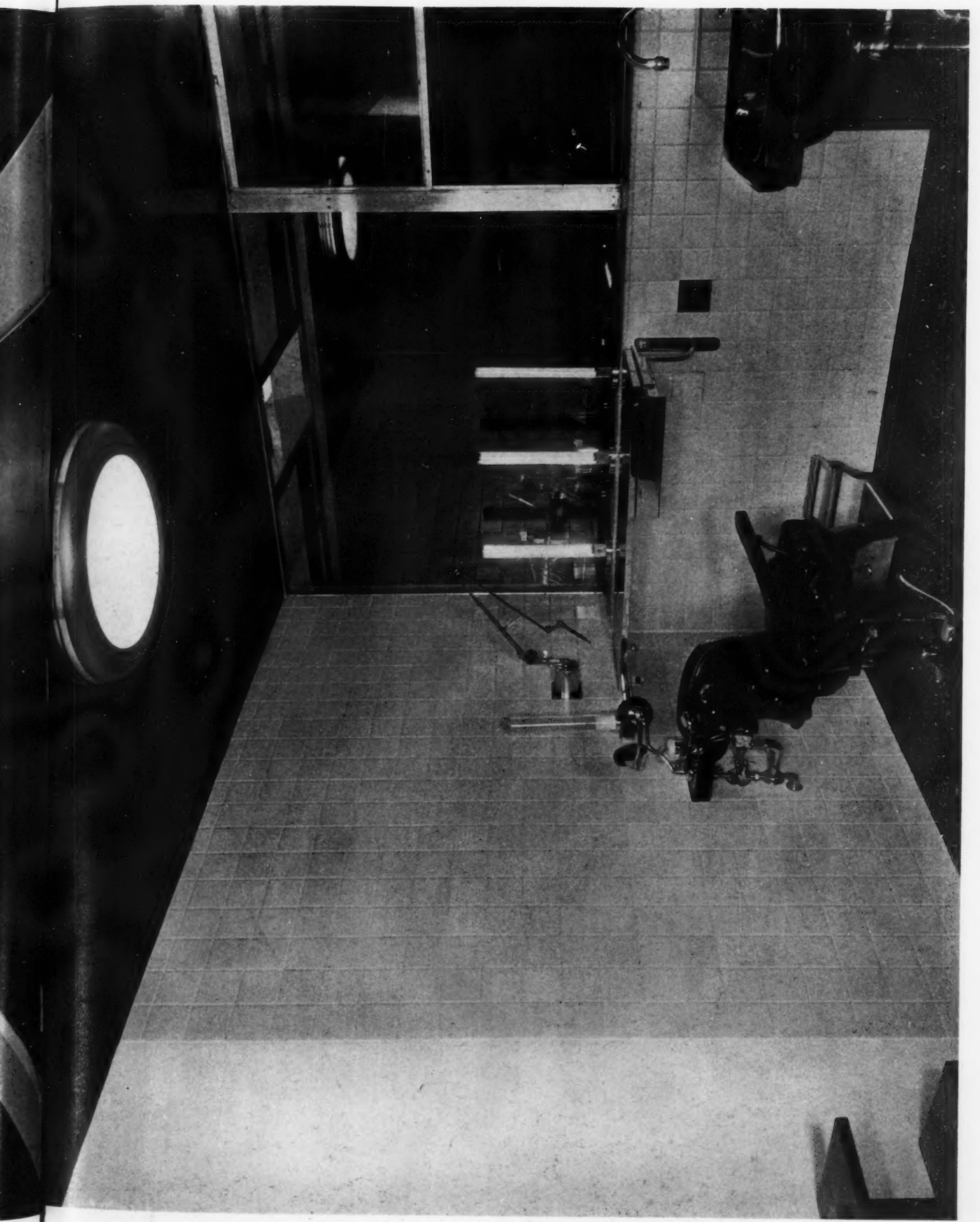
*Photograph by Alexander Piaget*

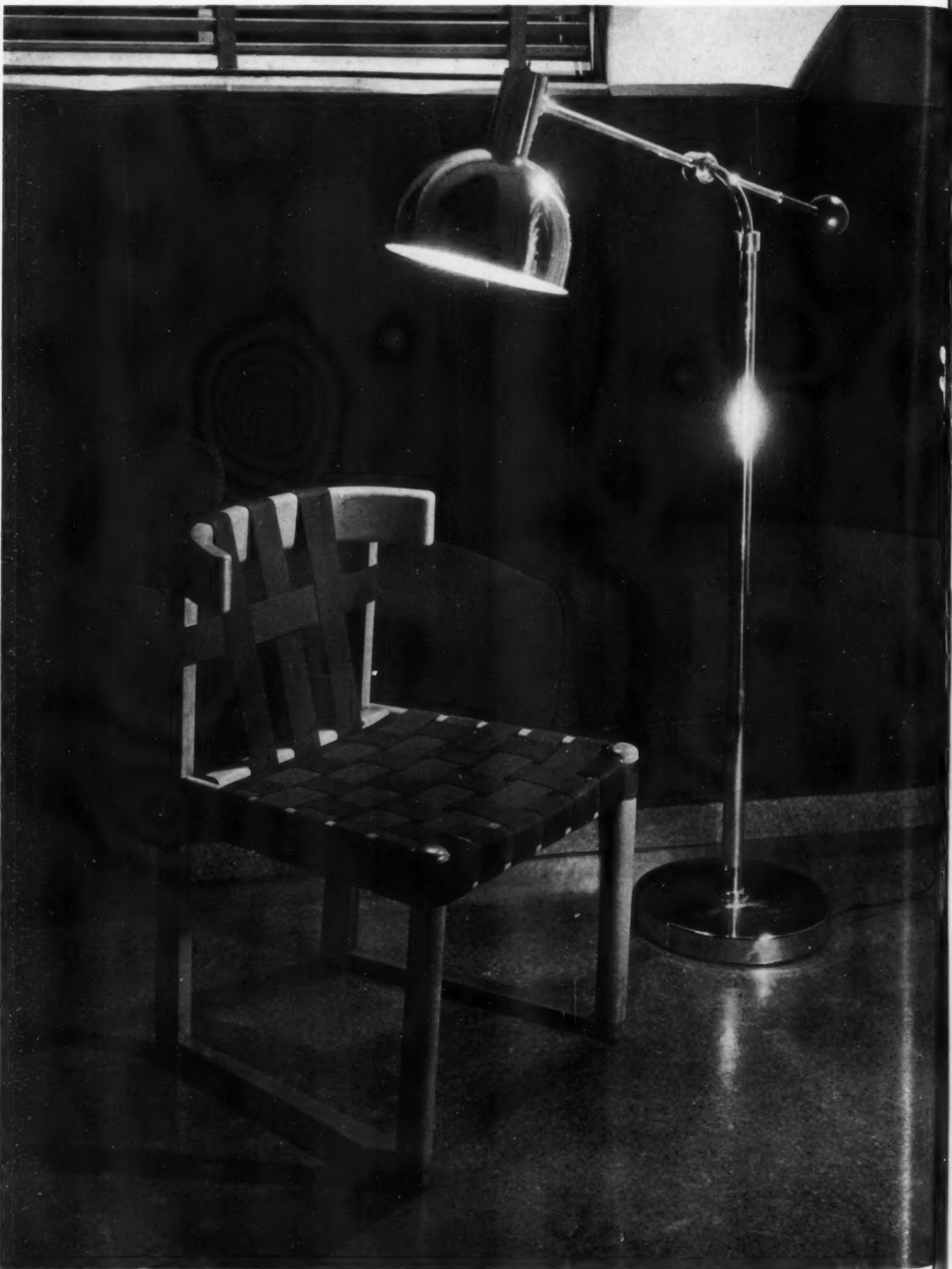






*Photograph by Alexander Piaget*

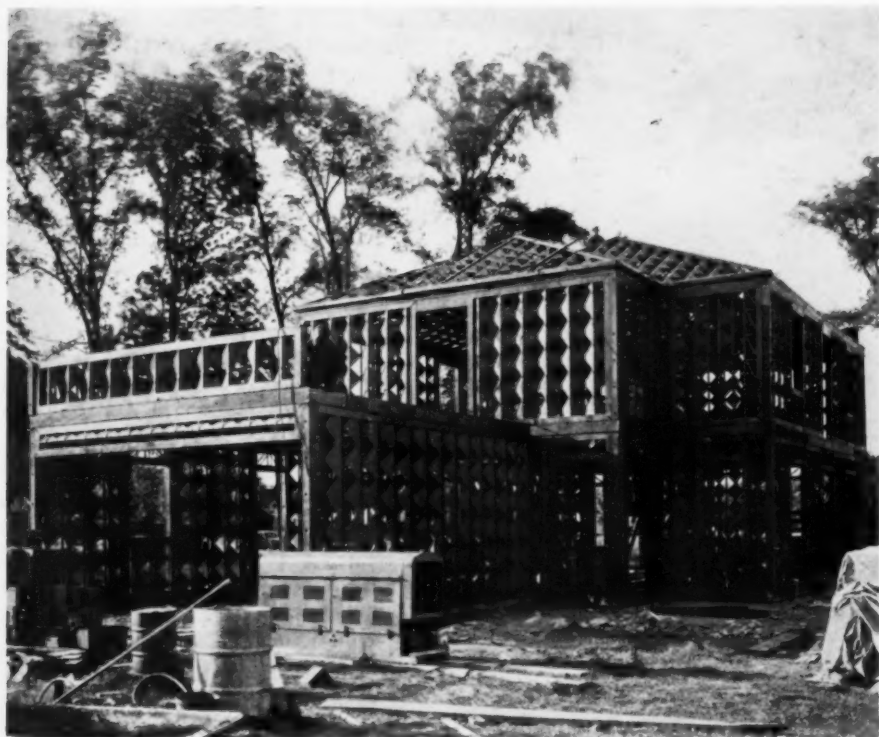




*Photographs by Alexander Piaget*



# TECHNICAL NEWS AND RESEARCH



## INTEGRATION IN STEEL

A new company—the Arcy Corporation—has entered the building field to produce houses “at a set price with a single contract.” Architectural design, engineering, fabrication and field assembly are combined into a single merchandising organization that offers the prospective home owner the economies of a unified building procedure. Unnecessary production steps are eliminated.

This commercial integration is reflected in the integration of the structural frame of Arcy Houses. A system of welded structural steel sheets and angles offers the advantages of standardization and prefabrication in combination with flexibility in the design and plan of individual houses. Any veneer can be supplied to the steel framework to provide whatever exterior design—from “Williamsburg Colonial” to “Modern International”—the buyer may desire. The houses are termite proof, windproof, fireproof, lightning proof.

Six houses are under construction at present. Five, in the \$15,000 class, are being erected in the Cleveland Heights area (see photograph of models in News of the Month, page 331). Another, costing approximately \$50,000, is being built for Laurance Rockefeller in Pocantico Hills, Tarrytown, N. Y.

Plans have been made for the production of houses costing \$5,000 or less. These will have the same structural system as in the higher priced custom-built types. Some 50 standardized layouts have been prepared for buyers' selection.

Through arrangements already made with a life insurance company, mortgage money will be obtainable up to 66 2/3% of the combined value of house and land. Initial operations of Arcy Corporation will be within a 100-mile radius of 5 key cities: New York, Philadelphia, Pittsburgh, Cleveland, Chicago. Executive offices are in Rockefeller Center, New York. The organization is headed by B. J. McGarry, president.



Photos by Rempes

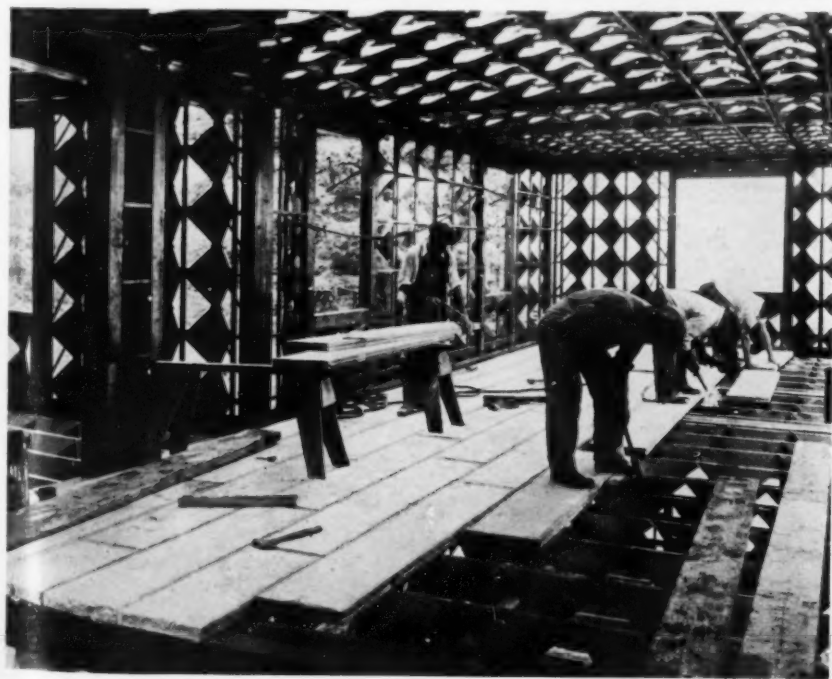
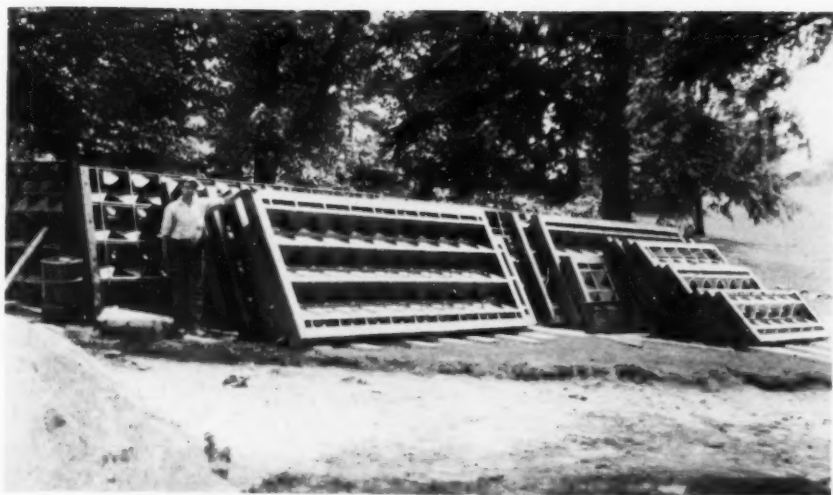
## ARCY IN THE FACTORY

*Standardized panels are fabricated in the Pittsburgh plant and then shipped to the building site for field assembly. Their construction is based on a system originally invented by Professor Walter H. Stulen of the Carnegie Institute of Technology and developed by the Arcy Corporation.*

**Structural units:** Flat sheets of 16-gauge structural steel are cut into diamond shapes which are bent in the middle to almost a right angle and flanged along the edges to give stiffness. The plates are then placed in series and spot-welded to three 1" steel angles running parallel along the middle fold and along the two outer diamond points. These welded units in turn are spot-welded together to form truss-like floor and wall panels.

**Structural panels:** A module of 18 inches—the distance between the outer diamond points—applies to all panels. The standard panel consists of four structural units, giving a 6-foot working width as the planning module. Smaller widths are fabricated only for special framing. Wall panels are 4½" deep, floor panels 7½"—the variation is obtained by using diamond shapes of differing dimensions. Wall panels are 8' 6" and 9' high. Floor panels run up to a maximum span of 28'; these are also used for the roof construction. All panels are framed inside steel channels and braced laterally by 1" angles. The steel construction does not vary, regardless of spans or loads; the economy in standardized fabrication offsets any possible structural saving in steel.

The use of mass production methods is combined with flexibility in individual house design. Rigid unit costs are established for all structures. With present facilities, frames for 3 complete houses of the \$15,000 class can be fabricated weekly.



## ARCY IN THE FIELD

The structural integration includes the fabrication of metal cabinets, closets, kitchen sinks, window sash, door trim and base, stairs, air conditioning ducts and similar items according to Arcy specifications. Products of U. S. Steel Corporation are used wherever possible. A \$15,000 house takes about 15 tons of steel for the framework, about 3 tons for the miscellaneous equipment.

**Structural assembly:** The steel panels are hoisted in place and welded together to form a single-unit structure. No nails or bolts are used; all connections are welds. The frame is anchored to the foundations (concrete, brick or the like) by means of base channels. Insulation and finishes are then attached to the steel framework. Cork is used for insulation (1½" for walls, 2" for roofs). Brick, stone, wood or any other exterior veneer is applied over the cork. Plaster over wire fabric lath is used for interiors. Gypsteel planks are used for floors.

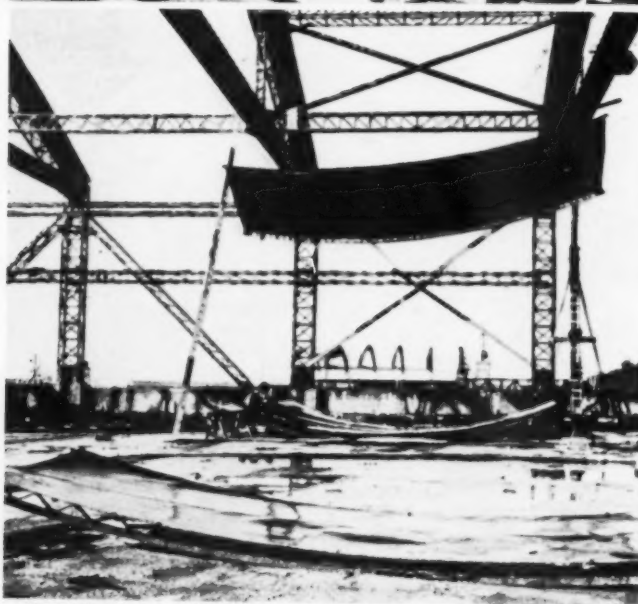
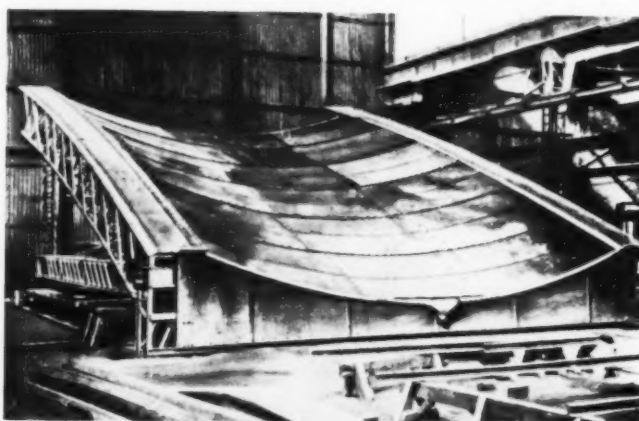
**Structural flexibility:** Stairs, doors and windows are easily framed into the steel assembly. Since the design of the structural framework provides long unobstructed spans, interior partitions generally are not load-bearing and therefore can be made of a light construction and placed wherever desired. The triangular openings in the structural units and panels provide space through which wiring, pipes and air conditioning ducts can be run. Specially designed ducts, triangular in cross-section, are used.

About 60% of a typical construction job is steel prefabricated in standardized units. Local labor is to be employed wherever possible for work done on the site. The entire frame of a \$15,000 house can be assembled and welded in 36 hours.





roofs for military mobility—the new prefabricated metal hangars of the French Air Ministry



standardized roof sections are fabricated in advance and then quickly assembled on the site

Illustrations courtesy L'Ossature Métallique

## INTEGRATED ROOFS

The threat of European war and the rapid development of huge air armadas have introduced new problems in the design and construction of hangars. To accommodate the wingspread of the planes, the hangars must be increasingly large; their openings must be wider and free of intermediate supports. Military strategy adds the requirement of speed and ease in assembly and disassembly.

The new metal hangars of the French Air Ministry are composed of prefabricated units which can be easily erected wherever conditions demand. As in so much military work, a high technical standard is set. An innovation appears in the design of the roof where the tensional strength of steel is utilized to provide a covering of light weight. M. Aimond, engineer, is the designer of the roof.

The metal hangars, according to *L'Ossature Métallique*, have an unobstructed width of 70 meters. Their depth is variable in multiples of 11 meters—the distance between the columns which support the arched roof trusses. On these prefabricated trusses are suspended the prefabricated roof panels, like skin stretched over ribs.

**Roof panels:** High strength steel sheets of 1.4 millimeter thickness are welded together in pairs to form units measuring about 2.50 meters wide and 3.35 meters long. These are joined in threes by welding or bolting to form bands 10.20 meters long. Each of these bands is suspended by its ends to consecutive pairs of arched trusses spaced 11 meters on centers. Each band takes a hyperbolic form and acts like a cable on a suspension bridge. The weight of the steel, the snow loads and wind loads are transferred into the roof trusses. The forces exerted on the trusses by the steel bands and their loads are equally balanced, for each arch is formed by two half-segments of the hyperbola. At the ends of the hangars are arched "throats" which terminate the steel bands and carry loads directly to the ground on their own supporting columns. Thrusts in the main trusses are taken in part by steel buttresses spaced regularly outside the structure.

**Framework:** Columns are 9.10 meters high. The whole structure rests on reinforced concrete foundations rising 1.50 meters above the ground. Bases for the buttresses are 10.20 meters outside the main walls.

## TESTING BEHAVIOR OF SOILS FOR FOUNDATIONS

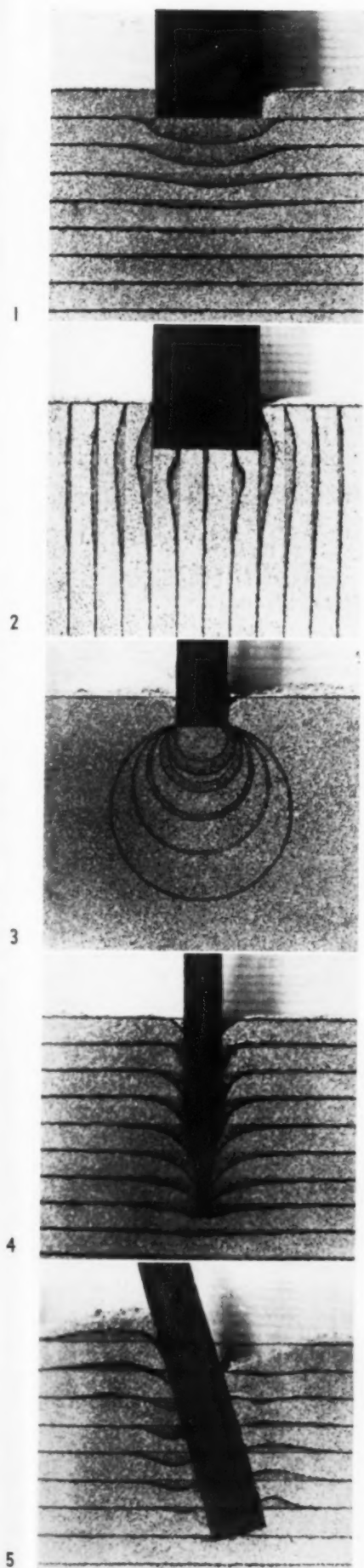
Foundation work involves the problem of calculating stress distribution in soils. Every mathematical formula developed theoretically must be checked against practical experiments to establish its validity. Test apparatus and procedure for representing ground deformations have heretofore been generally cumbersome and expensive. It has been standard practice, up to the present time, to carry out such experiments with layers of colored sand. Much care has been necessary in preliminary preparation and placement.

A new method, developed by K. Fischer, Viennese engineer, greatly simplifies the representation of stress in homogeneous masses of sand and may lead to new research in the field of soils and foundations. The Fischer experiments are described in a report received by the American Society for Testing Materials from a similar organization in Austria:

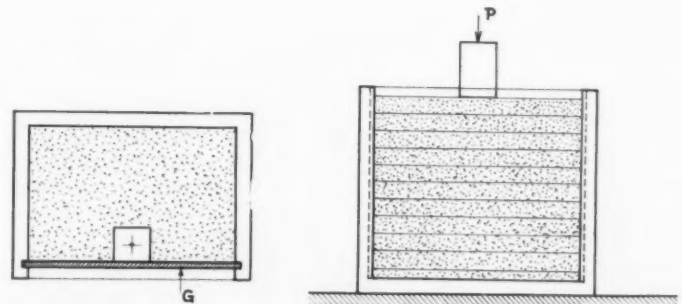
**Process:** "The apparatus consists of the customary box-like container with wooden walls, the front one being a strong glass plate slid in along grooves from the top (see diagram). The placing of the sand in colored layers is avoided, however. Before the glass plate is put in place a number of parallel lines consisting of a special coloring matter (aniline violet) are thickly ruled on it. After all lines have been dried, the glass plate is for a short time put into a damp space or treated with aqueous vapor in order that the colored lines will be moistened to the same degree. The glass plate is then slipped into the empty container with the

lines on the inside face of the plate. By means of a funnel, fine sand is now carefully poured into the container, the filling progressing steadily in horizontal layers until the desired height is reached with a level, even surface. The grains of sand against the glass plate will absorb color from the lines. The test load must now be applied immediately in such a way that the plunger will be against the inner surface of the glass plate in order that the observations can be made in the vertical plane of the plate. The application of the load will show distinctly the progressive deformation of the sand layers, thus also affording a view of the stress distribution."

**Results:** "Some examples of the author's experiments are shown in the accompanying photographs. Figure 1 shows the distribution of stress in horizontal layers under a square plunger with vertical load, while Figure 2 gives the same load with a representation of deformations in vertical planes. It is difficult to demonstrate the latter deformations in any other way. Figure 3 shows the deformation of circles passing through the edges of the plunger. In this connection, it was possible to prove that such circles represent the location of like deformations (isochromes), a fact already theoretically known. Deformations in more complicated procedures can be represented in this way also, such as the deformation of horizontal layers when a pile is driven (Figure 4) and, finally, the deflection of horizontal lines in the case of the overturning of a vertical wall (Figure 5)."



Photographs courtesy A.S.T.M.



plan and section of testing apparatus showing position of plunger



Kaufmann & Fabry

Drafting room of the International Harvester Co. (photograph courtesy G. E. Vapor Lamp Co.)

### light designed for drafting

*In the drafting room the seeing tasks are severe. Working efficiency depends on visual efficiency. This close relationship between lighting and productive efficiency is reflected in the steady advance of illumination standards for drafting work. A specific illumination level of at least 20 foot-candles at the working plane is usually recommended by lighting engineers. This level is taken as the standard of minimum adequacy since draftsmen show a measurable loss in productive efficiency when working at lower levels. Adequate illumination is not enough, however. The distribution and the visual characteristics of the light itself must also be correlated to the required seeing conditions.*

*The distribution of natural daylight as it enters the room from skylights or windows above and to the left of the drawing boards is usually taken by the lighting specialist as a desirable ideal, even in preference to completely shadowless indirect lighting. When artificial lighting is used instead of north light, the light sources—as in the case of windows—should afford a large area of low intrinsic brightness. A light source of concentrated brightness, even when shaded to protect the eyes from direct glare, results in disturbing highlights of reflected glare on tracing cloth, polished drafting instruments, and the like. Light*

*distribution that lacks uniformity, such as that obtained with a desk lamp within a foot or two of the work, is tiring to the eyes and interferes with accurate observation of tone variations in renderings. The black shadows produced by a too intense direct lighting are disturbing. "Controlled" shadows of a diffused character are considered more natural and therefore more desirable.*

*A proper spectral balance of light is another prerequisite for drafting efficiency, particularly where the work involves recognition of color values or use of colored inks, papers and paints. Ordinary incandescent lamps have an excess emission of red in comparison to daylight, which may result in a disturbing variation and contrast of values when such light is used to supplement daylight at certain hours or in certain parts of the room. Sometimes blue glass bulbs or filters are employed to correct the light, but this "subtractive" method absorbs 35% or more of the total light output, thereby reducing its efficiency correspondingly.*

*By blending together the incandescent light and the light of mercury vapor lamps, which are rich in blue and green emission characteristics, a color balance equivalent to ordinary daylight is obtainable. This "additive" method of color correction utilizes the full light output of both types of lamps. In recent months*





Westinghouse mercury-mazda unit



Westinghouse 400-watt dome reflector



General Electric combination unit

such combination lighting units have been put on the market and research is currently under way on the development of new types of mercury vapor lamps of widened flexibility (see *Technical News and Research* reports: March, p. 243; April, p. 336; May, pp. 409, 410; August, p. 166; October, p. 44). It is significant that these combination mercury-incandescent units are finding early application in the design of drafting rooms.

**Designs for drafting:** A new drafting room building has been erected for the gas power engineering department of the International Harvester Co., Chicago. Walls of this building are windowless. Skylights in the sawtooth roof supply daylight to a completely air conditioned central drafting room which measures 145 by 75 feet in area and houses tables and desks for over 100 draftsmen, engineers and inspectors. For supplementary use with the daylight or for separate use when solar illumination is lacking, eighty combination mercury-incandescent units, operating at 850 watts, are mounted 11 feet high directly over and parallel to the left-hand edges of the drafting tables. The spacing of tables and cabinets is correlated to the lighting layout. A uniform illumination in excess of 20-foot candles is provided.

A system of combination mercury-incandescent lighting is now being installed in the main drafting room of the Harvard School of Architecture in Cambridge, Mass. The installation will provide totally indirect lighting.

#### transformers for mercury lighting

*Transformers and reactors designed especially for the requirements of high intensity mercury lighting are announced by the Westinghouse Electric and Manufacturing Company.*

Because of the difference between initial starting voltage required for the lamp and the final operating voltage, a transformer with high internal reactance or a reactor must be used with each lamp. This equipment is designed to regulate the current during starting period and to limit the current for slight changes in line voltage during normal operation.

All units are available in two types—suspension mounting type, from which lighting fixture can be hung, or wall mounting type, which can be mounted on wall or ceiling or any flat surface.

#### mercury dome reflector

*A new dome type low-mounting reflector for use with the 400-watt high intensity mercury lamp has been designed by the Westinghouse Electric and Manufacturing Company. It is intended for general industrial lighting applications.*

The reflector is equipped with a monax glass cylinder which surrounds the lower portion of the lamp providing a  $72\frac{1}{2}^\circ$  angle of cut-off. It is designed for mounting heights of 10 to 18 feet. The reflector is drawn from 22-gauge iron sheet porcelain enameled. A glass collar of monax homogeneous glass is supported by three steel cadmium-plated supports locked securely in the top portion of reflector. Lamp or collar or both may easily be removed without removing supports.

#### mercury-mazda lighting units

*For industrial lighting where color correction is necessary, a combination 250-watt mercury-mazda lighting unit has been announced by the Westinghouse Electric and Manufacturing Company.*

The units are designed for mounting heights of 8 to 18 feet. Two distinct circuits are used, one to control the mercury lamp and one to control the mazda lamps. The design is such as to allow three 60-watt, three 75-watt or three 100-watt mazda lamps to be used without interfering with the restarting of the mercury lamp in case of a voltage interruption. The unit consists of an aluminum reflector, with socket assembly and a monax diffusing hinged glass bowl. The entire socket assembly is attached to the top of the reflector. A slip type louvered cover provides sufficient ventilation for the sockets and allows for wiring or inspection of wiring.

*Several refinements in design have been introduced in a new model developed by the General Electric Vapor Lamp Co.*

At 275 watts the mercury tube supplies the same lumen output as did the older 350-watt tubes. For the incandescent component four 150-watt lamps are used. This ratio provides fullest color correction. The total output of 11,200 lumens is distributed through 650 square inches of diffusing glass so that the intrinsic brightness is well below glare level even when the light source is looked at directly.



Photo by Dana B. Merrill

**"Pontalite"—the cylinder of plastic is 9½ inches thick yet transmits light clearly**

## NEW PLASTICS . . . . . "Pontalite", "Catabond"

### thermo-plastic transparency

A new plastic bearing the trade mark "Pontalite" was described by H. R. Dittmar of the duPont Company in a paper before a recent meeting of the American Chemical Society. It has not yet reached commercial production, but a factory is now being built which will be in operation early in 1937.

This plastic, known to chemists as methyl methacrylate polymer, is only half as heavy as common glass, is as clear as optical glass, and is so strong that it will resist a tension of 4 to 5½ tons a square inch. Though softer than glass, it is hard enough to be widely useful.

*Flexibility:* Pontalite is thermo-plastic and can be sawed, cut, drilled, and polished; it can be molded readily to any desired form. A liquid intermediate variety can be poured into molds and hardened, and in this way castings are made readily. Unlike glass, Pontalite transmits a large proportion of the sun's ultra-violet light. It is, moreover, unaffected by sunlight, and in general is not attacked by destructive elements. The absence of color permits fabrication into delicate tinted shades. By combining dyes and pigments, varying degrees of color and transparency can be obtained.

*Applications:* Solutions of the plastic, also the liquid intermediate form, have been used successfully as impregnants for wood, cloth, paper, stone, and electrical apparatus, according to Dr. Dittmar. Materials treated in this way are much more resistant to water, oils, and chemicals. For example, when wood is treated with the plastic, the strength is increased, as is resistance to water absorption, warpage, and the action of chemicals. Though Pontalite can be burned, it is not flammable in the ordinary sense; it is definitely a "safety" plastic. Many chemical variations of Pontalite can be produced, having a wide range of properties, all the way from hard, heat-resistant solids to heavy viscous liquids.

### versatile laminations

A new synthetic resin, called "Catabond," is announced by the American Catalin Corporation, 1 Park Avenue, New York. It has been developed to replace certain types of glues in the manufacture of laminated products. Names of manufacturers

of veneers, plywoods and similar laminated products using this new resin are obtainable on request.

The resin is practically colorless. It can be used as a surface coating as well as a bonding material between the different plies. Both operations are performed at the same time during the hot pressing of the plywood or veneer. Since a transparent and practically colorless film is formed, the resin takes the place of lacquer or varnish when applied to wood.

*Colored surfaces:* If color is required, the wood may be stained or a stain or pigment can be mixed with the liquid resin. Colored paper or fabrics can be laminated on the surface of plywood or composition materials, provided the colors will not run in the solvent with which the resin is thinned and will withstand the relatively low temperature (about 300° F.) at which the laminating is done.

*Physical qualities:* Catabond is weather-proof and resistant to injury by fungus growth or insects. It can be used in bonding wood that has been rendered fireproof by salt or other impregnation and in bonding wood or other materials to such composition fireproof boards as Transite and Masonite. The resin itself is noninflammable and resistant to heat up to temperatures at which wood itself is injured. Plywood bonded with Catabond is so resistant to water that it is not injured by prolonged submersion in boiling water. The glue line is stronger than the wood itself and this increases the strength of the plywood. As the process of bonding does not introduce moisture, swelling of the wood is avoided. Catabond combines chemically with water present in the materials laminated during the laminating process and it is not necessary to control their moisture content closely to avoid blistering and other defects in bonding.

*Applications:* Because of the properties imparted to laminated products by Catabond, it is anticipated that they will be used extensively for fireproof and other paneling; for bars, counter tops and table tops; for furniture; in the construction of water craft, aircraft and automotive bodies; for roofs and paneling in railway coaches and for a wide diversity of products such as luggage, kitchen accessories and the like.